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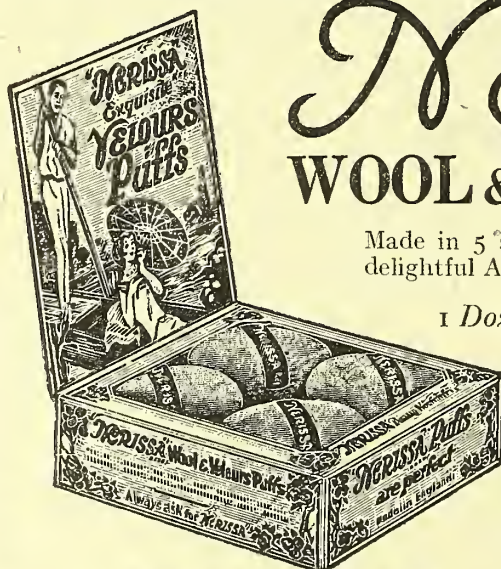
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### IT SIMPLY COMPELS ATTENTION

The "AUTOWAY" is not made in America or Germany. It is made in Glasgow. To see the "AUTOWAY" is to feel proud it is British.

### Read what users say.

The "Autoway" is neat in appearance, and though conspicuous, is not obtrusive. Financially, it may well be described as a "gilt-edged security."

When your representative called, I was against replacing the weighing machine I had, but the smart, substantial appearance of the "Autoway" made me unable to resist, and I am glad I didn't.

I bought the "Autoway" with a view to providing a convenient weighing machine for my customers. I have been surprised at the success of my investment. I would not have the old type of weighing machine now on any account.

I think the purchase of your machine was a very sound business proposition. There seems to be something "irresistible" about the "Autoway."

The "Autoway" has been the best advertisement I have ever had. In addition to its own revenue, it has brought many new customers.

I bought one of your "Autoways," and must say the receipts from same have far exceeded my expectations.

The "Autoway" is the most handsome fitting in my well-fitted shop.

*The names of the Chemists from whose testimonials these extracts are quoted will be supplied on application.*

## INVEST YOUR MONEY IN YOUR OWN BUSINESS

**£5** deposit ins'tals the AUTOWAY  
BALANCE IN SMALL MONTHLY PAYMENTS

The AUTOWAY stands 4 ft. 9 in. high  
(exclusive of detachable mirror).

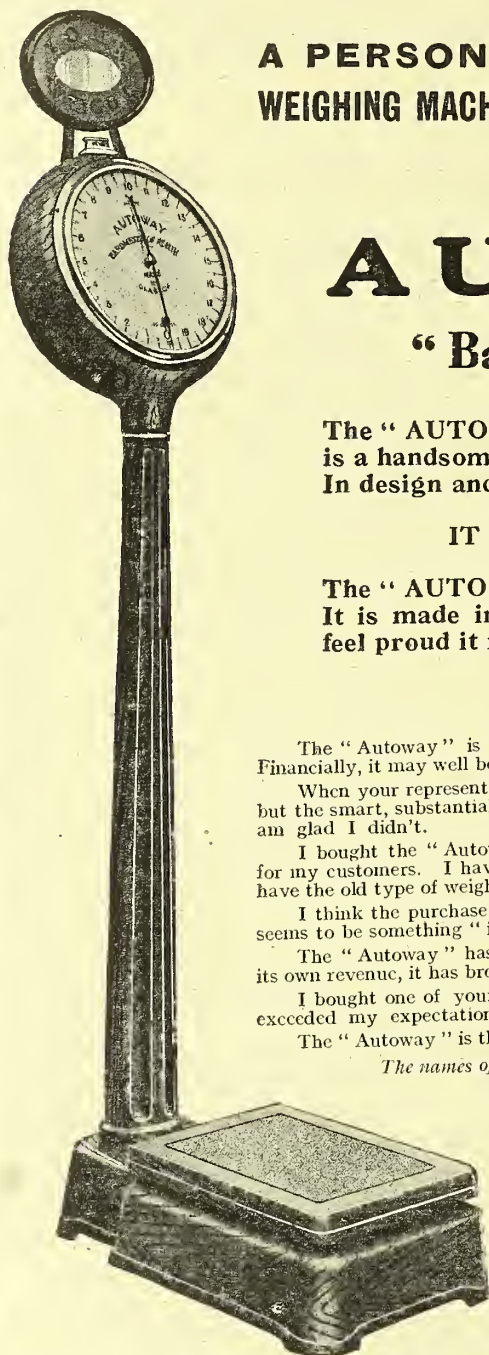
It is portable, weighing 100 lb. Body-work of metal with cellulose grained mahogany finish. It has a silvered dial with engraved lettering, this being framed with a chromium-plated, untarnishable rim. The platform is in coloured mosaic. AUTOWAY weighing capacity, 20 stone.

Progressive and up-to-date Chemists, it is to your interest to write for particulars, and the address of the nearest AUTOWAY agent.

**AUTOWAY CO.**  
13 Wellington St., Glasgow.

Telephone: Central 59.

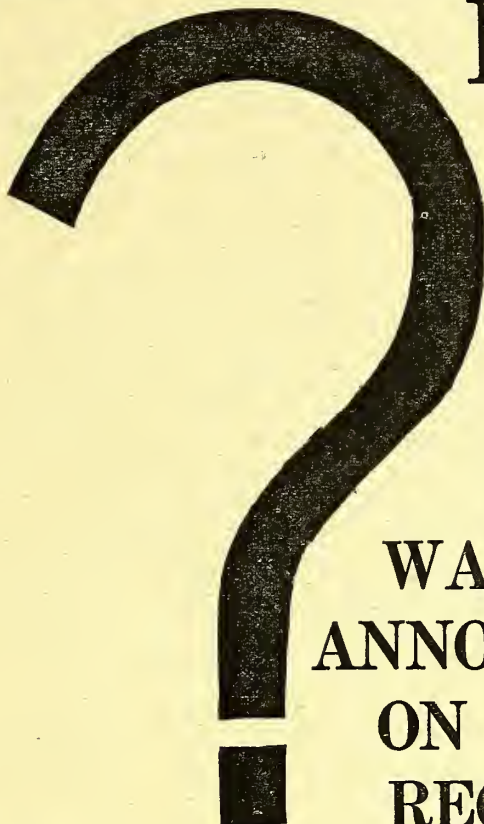
Telegrams: "Autoways, Glasgow."





# WHAT WILL IT BE

**NEW  
MIX**



**WATCH FOR  
ANNOUNCEMENT  
ON PAGE 9  
REGARDING**

## **BONUS TERMS FOR WINDOW DISPLAYS**



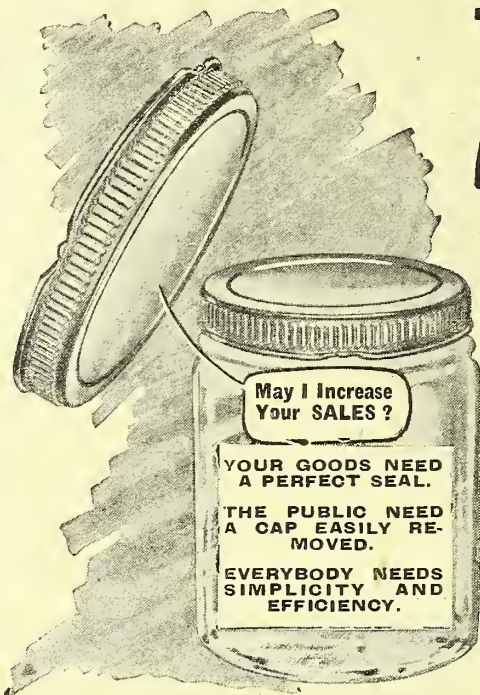
NO SOAP

NO GRIT.

NO DRUGS.

**GILMONT PRODUCTS, Ltd.**  
35 CRUTCHED FRIARS, LONDON, E.C.3

THE PERFECT **RESEAL** CLOSURE.  
**THE**  
**AMERSEAL**  
REG. U.S. PAT. OFF.  
**CAP**



It is a cap from which the contents cannot escape. A quarter turn securely seals—a quarter turn quickly unseals.

It can be attractively lithographed in any colour scheme—giving an extra sales value to the product.

It is beautifully made and strong enough for the roughest usage.

It is very moderate in price.

For **NARROW MOUTH** Bottles—For **WIDE MOUTH** Jars.  
**AN IDEAL SEAL AND RESEAL.**

*Write or call for full particulars.*

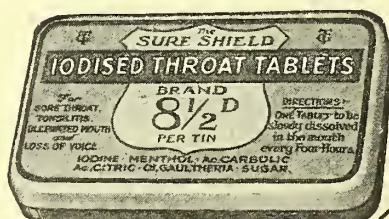
**NATIONAL GLASS Co., Ltd.**  
 1, CHARTERHOUSE STREET, LONDON, E.C. 1.

**LONDON DEPOT:**  
**1 SWAN STREET,**  
**MINORITIES, E.1**  
 Telephone: ROYAL 8111.

**THE SURE SHIELD**



**IODISED THROAT TABLETS**



**8 1/2 d. Tins**

**5/6 per doz. 63/- per gross**

**1s. 3d. Tins**

**9/6 per doz.**

**108/- per gross**

**THOS. GUEST & CO., LTD.,** CARRUTHERS STREET,  
 ANCOATS, MANCHESTER.



Maw's



Page

## What "Meritor" tooth brushes mean to you

"Meritor" tooth brushes mean more sales and quicker sales; sales which yield complete satisfaction to the customer who buys and the pharmacist who sells: sales which yield satisfactory immediate profits and create permanent business unaffected by outside competition.

*Give the "Meritor" display case  
the place of honour on your  
counter and make "Meritor"  
tooth brushes your leading line.*

S. Maw, Son & Sons, Ltd.,  
Aldersgate St., London,  
and Barnet.





# Tomlinson

## 51, Newland



### TOMLINSON'S DAIRY HELPS

*Butter Powder, Butter Colour, Cheese  
Rennet, Essence of Rennet, Liquid Annatto,  
Junket Tablets, &c.*

THESE PRODUCTS ARE IN CONFORMITY WITH FOOD REGULATIONS.

## WATER GLASS

*for Egg Preserving*

WE ARE THE LARGEST PACKERS OF THIS ARTICLE.



## HAYWARD'S SHEEP DIPS

*The original Hayward's Dips, introduced 1842.*

APPROVED BY MINISTRY OF AGRICULTURE

Packing to meet all requirements.

PASTE — POWDER — FLUID

# *& Hayward Ltd*

## *Lincoln.* (ONLY ADDRESS)

# Eureka

## WEED KILLER



*The Chemist's Favourite Brand.  
Easiest to sell. Sales through Agents  
and not direct to users. A paying line.  
Write for Particulars and Terms.*

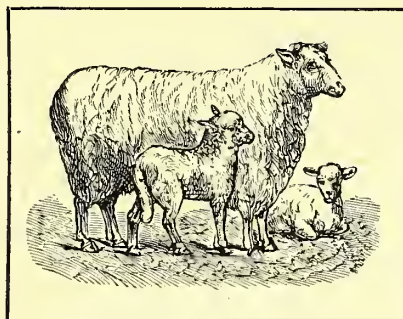
**POWDER**

**LIQUID**

# LUDDINGTON'S

## OILS

*A full range of Veterinary Lines under  
our Brand or your "Own Name."*



# EMBROCATIONS, DRENCHES

## POWDERS, &c.





We make

## GLASS BOTTLES OF EVERY DESCRIPTION

*(Hand or machine made)*

Ask us to quote for

**EMULSION.  
EMBROICATION.  
DISPENSING.  
FEEDING BOTTLES.**

*&c., &c.*

Immediate delivery of well made, perfectly  
finished bottles at competitive prices.

**Wholesale Only.**

**BUY BRITISH BOTTLES !**

*Regd. Office:*

**Albert Glass Works,  
HUNSLET, LEEDS.**

Tel. Address:                      Tel. Nos:  
" Feeders Phone Leeds. 27047, 23080 L <sub>eeds</sub>

## BEATSON, CLARK & CO. LTD.

Chemical and Medical Glass Manufacturers

**ROTHERHAM, YORKS.**

Telegrams - - - "BEATSON, ROTHERHAM.



**SHOP ROUNDS. OIL ROUNDS.  
POISONS. SYRUPS & ETHERS.**

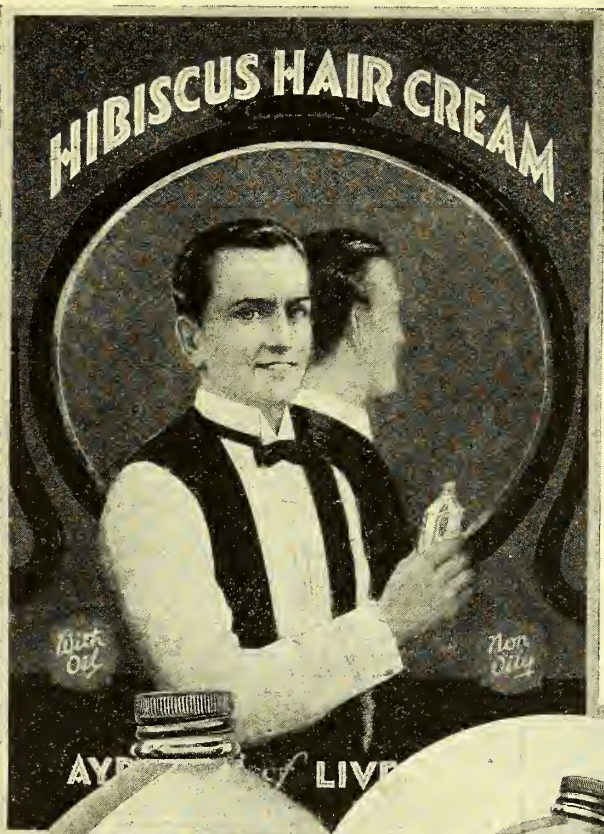
WITH AND WITHOUT RECESS LABELS.

**ESTABLISHED 1751.**



*That's what I call a  
sensible idea*

## A MAN'S HAIR CREAM



**THE CREAM** is unobtrusively perfumed, and ensures a well-groomed appearance from morn till night.

In three varieties: Non-oily, Oily and Extra Oil, to suit every type of scalp. Embodies approved nutritive ingredients for promoting hair-health.

**THE BOTTLE.** Look at the picture! See how the bottle lies snugly in the hand: observe how the little finger supports the bottle, and the thumb finds a natural position on the sloping shoulder. The bottle that invites a shake! Have you ever tried to get Hair Cream through a sprinkler top? Here you have a full half-inch vent instead of a pin-prick sort of outlet. And the cap! Big enough to handle, easy to screw, difficult to lose. At every point, "a MAN'S bottle."

**THE FINISH.** Finely designed labels used in distinctive manner: protected and enhanced with cellophane.

**THE SHOWCARD.** A virile appeal to the well-groomed man.

## HIBISCUS HAIR CREAM



### PRICES

Three Varieties

Per doz. 9/0

6 doz. at 8/6

12 doz. at 8/0



Made by AYRTON'S of LIVERPOOL



# HARRISONS *The CHEMISTS' PRINTERS*

ALL SPRING AND SUMMER  
SPECIALITIES NOW READY

CARTONS, HANDBILLS, WRAPPERS, PHOTOGRAPHIC  
WALLETS, D. & P. BOOKS, &c.

Prices Reasonable :: Despatch Quick :: Quality Good

*Write now for Samples and be First in the Field :*

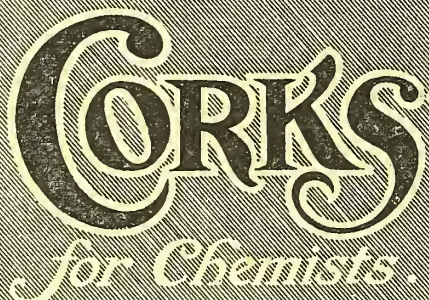
**ALF. HARRISON & SONS, LTD.**  
**BURLEY ROAD :: Chemists' Printers :: LEEDS**

Telephone :  
HEADINGLEY 51974.

London Office : Sentinel House,  
Southampton Row, London, W.C.1

Telegrams :  
"IDEAS," LEEDS.

Samples sent abroad on receipt of P.O. 10/- credited on a £5 order.



**CORKS**  
*for Chemists.*

Send us your Enquiries  
and compare our prices.

*Wholesale and Export.*

**C. OLLEY & SONS, LTD.**

Established 1844.

Camperdown St. and Gt. Alie St., London, E.1

Tel. No: Royal 2868. Tel. Ad : "Circumference, Ald, London."

**CAPSULES**  
OF EVERY DESCRIPTION.

The Tonkin Metallic Capsule Co.

Proprietors : C. Olley & Sons, Ltd.

**SCIENTIFIC  
MEDICAL &  
SURGICAL**

*Wholesale  
& Export  
only*

**GLASSWARE**

Shields, Eye & Nasal  
Douches, Syringes &  
Laboratory Glassware.

**FOREIGN COMPETITION  
FULLY MET.  
INQUIRIES INVITED.**

**H. J. POULTEN, Glassblower**  
47a REGINALD ROAD, FOREST GATE, E.7

'Phone : MARYLAND 3759.

**NURSE HARVEY'S MIXTURE**

A safe, simple and reliable remedy for Children's Ailments is advertised so extensively in the daily and weekly Press as to bring mothers to the retailer without effort on his part.

The selling has been done before the mother reaches the chemist, and, having supplied her, it is only common sense to claim she will buy other family necessaries from him. Moreover, the continuous demand for it produces a quick turnover.

*For Direct Terms apply to—*

**OSCAR SCRUTON & CO., YORK**





A drop on your handkerchief

**VAPEX**

CURES COLDS PREVENTS 'FLU'

THE MAGIC DROP

IN BOTTLES 2/- & 3/-

## APRIL SHOWERS

THE uncertainty of our climate is responsible for thousands of colds during the Spring season. There is a natural tendency to take liberties with the weather—and the inevitable result will follow. April showers bring forth more customers for "Vapex."

Let your customers know that you stock "Vapex." They will be glad to be reminded of such a pleasant and effective remedy.

Simply put this cut-out showcard on your counter. It takes up little room but will certainly attract favourable attention. A copy will be included with your order or posted on request.

TRADE PRICES P.A.T.A. (Stamped)

2/- size, 18/6 dozen.

3/- size, 27/6 dozen

To EXPORT BUYERS:—All orders and enquiries should be addressed to our Sole Export Agents  
Wm. ALFRED JONES Ltd., West India House, Liverpool

**THOMAS KERFOOT & CO LTD**  
BARDSLEY VALE, LANCASHIRE,  
& Bardsley House, London, N.1  
ESTABLISHED 1797.

C 385

COPYRIGHT



# SASSO OLIVE OIL

**D**O you buy your Olive Oil direct from a grower of noted repute? You should.

Messrs. P. Sasso & Figli, Oneglia, Italy, produce a perfect Olive Oil, which is regularly shipped to this country in sealed containers, so as to ensure a constant supply of fresh oil.

It can compete in price with any other good brand, and is very extensively advertised.

Make your contracts now. It will give your customers the greatest satisfaction.

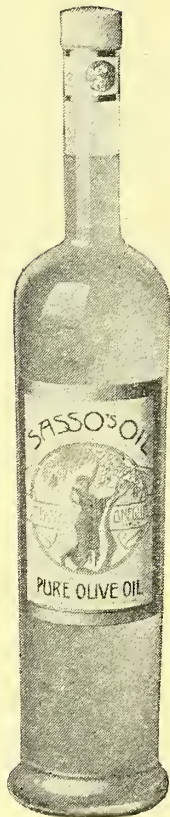
Write for samples and prices.

*Producers:*

**P. SASSO & FIGLI,  
ONEGLIA, ITALY.**

*Sole Distributors for the United Kingdom:*

**FREDK. BOEHM, LTD.,  
17, Jewry St., London, E.C.3.**





## She only needs reminding

about 'Roboleine' to buy it in your pharmacy. When the advertisement in the paper is read, the thought is "I must buy some." When the package is seen on your counter or in your window the thought is "Here it is"—and the purse is opened.

# Roboleine

THE FOOD THAT BUILDS THE BODY

*Write for generous Window Display Terms.*

**OPPENHEIMER, SON & COMPANY LTD.**  
179 Queen Victoria Street, London E.C.4.

*Manufacturers of "Maglactis," the Pure Hydrate of Magnesia with the continuous action.*





# Still on Top!!

## **EDWARDS' "HARLENE"** **Toilet Specialities**

### **THE WORLD'S BEST SELLERS**



"HARLENE"  
FOR THE HAIR  
"UZON"  
BRILLIANTINE  
"CREMEX"  
SHAMPOO POWDERS  
"ASTOL"  
FOR GREY HAIR  
"ASTINE"  
VANISHING CREAM  
"ASTINE"  
TOOTH CREAM  
"ASTINE"  
SHAVING STICK  
"ASTINE"  
NAIL CREAM

### **TWO QUICK-SELLING LINES!**

#### **"JUNOFLORIS" Spring Breath TABLETS**

A Breath Purifier and Antiseptic Mouth and Stomach Deodorant in Tablet Form—NOT a Cachou. As "Junofloris" is an entirely New and Original line which does not compete with anything in existence, it will therefore add EXTRA PROFIT to your business. Packed in Neat Counter Display Cartons of 1 doz. Boxes which sell "Junofloris" at sight.

#### **"JUNOFLORIS" Spring Breath DENTIFRICE**

A Dental Cream embodying the principal characteristics of ordinary tooth powders and pastes PLUS the unique power to remedy the tendency to Unpleasant Breath.

Prices of both above (Advertised (minimum Retail) 7½d. & 1/1½ per box  
lines (Makers' .. .. 6/8 & 12/- .. doz. less 20% discount.)

**PLACE YOUR ORDER TO-DAY.**

## **EDWARDS' HARLENE, LIMITED**

20, 22, 24 & 26 LAMB'S CONDUIT STREET, LONDON, W.C.1.



## Unvarying Uniformity of Quality

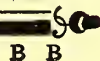
**M**ILLED by skilled men under scientific supervision, Staff Allen's Powdered Tragacanth is appreciated for its uniformity of quality. Each batch of raw material is carefully selected, ground, and graded according to its colour and fineness.

Three principal qualities are prepared. **ELECT** is necessary where only the finest tragacanth is permissible. No. 1 is suitable for all ordinary purposes

and has the largest sale. No. 2 is a lower priced powder which is useful where a slight greyness of colour is not objectionable.

Your enquiries for Staff Allen's Powdered Tragacanth will receive careful attention. Write for samples and prices to-day. **STAFFORD ALLEN & SONS, LIMITED**, Drug and Spice Millers since 1833, **COWPER STREET, FINSBURY, LONDON, E.C.2.**

**Staff Allen's**  
*POWDERED*  
**TRAGACANTH**





*NOW* **KV-BIST**  
*there enters*  
**the very newest Toilet series.**

**H**ERE it is—the line that in the supposed to be ‘overcrowded’ toilet market was so heartily received that our big bottle stock was swept out in three weeks. For a month we were unable to execute orders.

Good looks—wonderfully good looks—and **VALUE**—are the secret. It is a Bond Street line at a popular price.



Reproduction of the brilliant, full-colour showcards and counter tickets provided. Descriptive booklets also available with every order.

Study the sales possibilities of the bottle. It is an exclusive, of course, and of most intriguing design. Wonderfully easy to manipulate; fits the hand as though made to measure.

Though the KV-BIST series of Toilet Creations is quite new, the preparations themselves have been proved by many months of professional testing. Most of them we originally created for use and sale by a group of exclusive hairdressing and beauty salons.

Here are the lines now in the series:

After-Shave Cream; Brilliantine; Bay Rum and Cantharides; Bay Rum and Jaborandi; Toilet Paraffin; Jasmine Oil; Hair Fixative; Coconut Oil, Dry, and Pine Tar Shampoos; Wave Setting Lotion; Cold Cream and Vanishing Cream.

Send for illustrated folder and the prices; or better still, ask on a postcard for our representative to call with a full range.

**PROFITS** are fine — you need only show this Series to reap a real reward.

**GOODALL, BACKHOUSE & CO., LEEDS.**

**A final word on WATERGLASS.**

If by any chance you have not yet purchased your season's supply of Waterglass, please remember that it is one of our great specialities. We offer prices, a range of packs, and advertising material not equalled in the Trade.

Put in a show of  
'Moorland's' and  
enjoy additional  
profits like other  
pharmacists are  
doing, and your  
money is abso-  
lutely safe when  
invested in this  
profitable line

One Doz. 4/6 One Gross 51/-  
Retail 7½d.



ORDER NOW—  
AND KEEP BUSY

W. B. Cartwright Ltd., Rawdon near Leeds



# POTTER & CLARKE

Manufacturing  
Chemists

The Sign of  
The Winged Lion



Registered  
Trade Mark

Drugs LIMITED  
Merchants

## PILLS and TABLETS

specialy made to customers private formulæ.

Send in your formulæ and ask for quotation, mentioning quantity. Our price is right, we guarantee accuracy and quick delivery, and the finish of our preparations is unbeatable.

*The  
Winged Lion Brand  
on any Packet  
means the  
Best of its  
Kind*

*Essences*

*Herbs in Packets*

*Concentrated Waters*

*Crude Drugs & Extracts*

*Pills & Tablets*

*Flexible Capsules*

*Lozenges & Pastilles*

*Infusions & Tinctures*



## LET US HAVE YOUR ENQUIRIES!

Phones :  
Bishopsgate,  
1033, 1034, 1035.

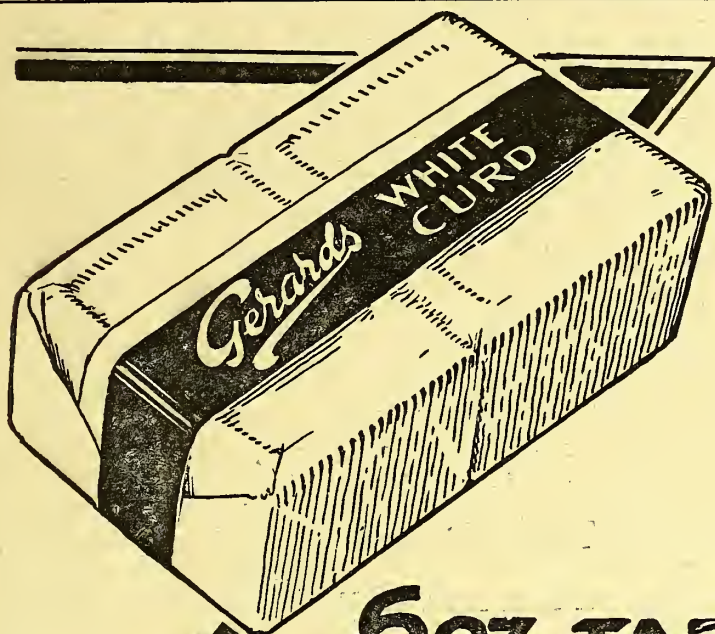
Potter and



Clarke Ltd.

Grams :  
Horehound,  
Phone, London.

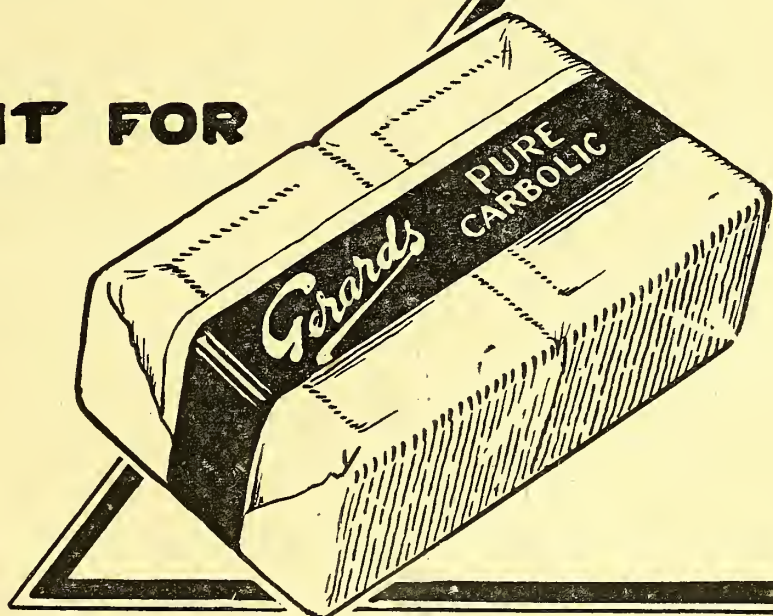
**60-64 ARTILLERY LANE, LONDON, E.1.**  
MANCHESTER: 24 Luna St., Gt. ANCOATS.



**SUPPLIED  
TO  
CHEMISTS  
ONLY.**

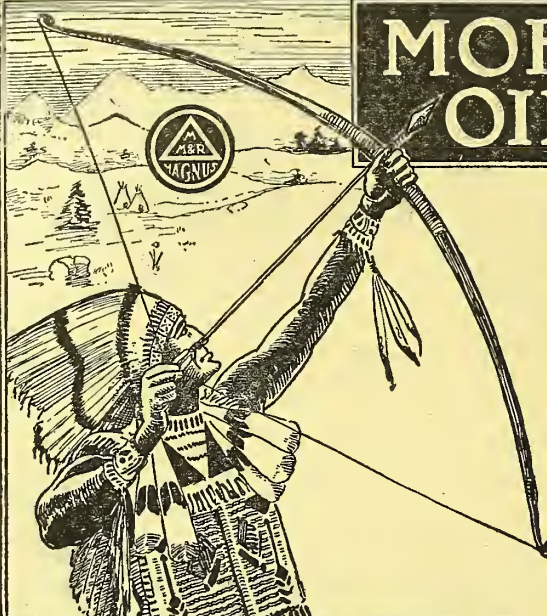
**6OZ TABLETS  
RETAIL PRICE -  
3<sup>d</sup> PER TABLET.**

**30% PROFIT FOR  
THE  
CHEMIST  
ON  
SELLING  
PRICE.**



**GERARD BROS., LTD.,  
THE SOAP WORKS, NOTTINGHAM.**





# MOHAWK BRAND OIL PEPPERMINT

**I**T IS OUR AIM to keep MOHAWK BRAND in its present eminence as the highest standard of Peppermint Oil. Unsurpassed purity and delicacy of flavour.

Single or Redistilled qualities in 28-lb. tins or 20-lb. tins. Smaller packages if desired.

*For samples and quotations, spot or forward, please apply to sole agents for Great Britain and Ireland:*

**The Old Strand Chemical and Drug Co.**  
LIMITED  
41 Great Tower St. (22 Beer Lane), London, E.C.3  
Telephone : Royal 8737 (2 lines).

## MAGNUS, MABEE & REYNARD, INC. NEW YORK U.S.A.

### Chemical Works "Flora"

DUBENDORF, ZURICH - SWITZERLAND

*Manufacturers of*

## SYNTHETIC & AROMATIC CHEMICALS

Offer special compositions for BRILLIANTINES, soluble in oil and alcohol, in the following odours:

|                         |      |      |     |
|-------------------------|------|------|-----|
| CARNATION 233 ..        | ..   | 18/- | 1b. |
| EAU DE COLOGNE 375      | 21/6 | ..   | ..  |
| HYACINTH .. ..          | ..   | 18/- | ..  |
| JASMIN 1137 .. ..       | ..   | 18/- | ..  |
| JASMIN 4002 .. ..       | ..   | 19/- | ..  |
| JOCKEY CLUB 258 ..      | ..   | 18/- | ..  |
| LILAC 1108 .. ..        | ..   | 17/- | ..  |
| LILY of the VALLEY C.H. | 33/- | ..   | ..  |
| ROSE 2466 .. ..         | ..   | 24/- | ..  |
| ROSE 2565 .. ..         | ..   | 18/- | ..  |
| VIOLET A .. ..          | ..   | 36/- | ..  |
| VIOLET B .. ..          | ..   | 24/- | ..  |
| WALLFLOWER 234 ..       | ..   | 18/- | ..  |

We recommend these on account of their strength and cheap price.

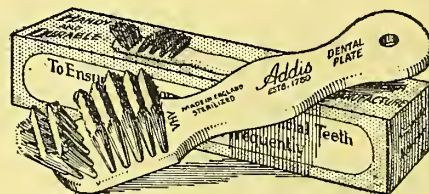
STOCKS HELD IN LONDON.

*Samples and particulars from—*

**CHAS. ZIMMERMANN & CO. (Chemicals), LTD.**  
St. Mary-at-Hill, London, E.C.3

*Addis*  
ESTB 1780

**WINGED  
DENTAL  
PLATE**



**BRUSH WORKS, HERTFORD,  
ENGLAND.**

**KIRBEE**

**RAZOR  
BLADES**

**5 for 1/-**

**DOUGLAS KIRBY & CO., Ltd.**

9/10 Charing Cross, S.W.1. Telephone : Gerrard 3147, 8063/4/5.

**BETTER BLADES  
BIGGER PROFITS**

Kirbee Blades have gained their popularity through British quality and an extremely low price.

Backed by vigorous advertising and sales aids they create their own demand and give you quick and generous profit.

Kirbee Blades are made from the finest Sheffield tempered steel—Gillette pattern.

Write for special trade terms  
TODAY.



# LIME OIL

(W.I. Distilled.)

**Finest quality at favourable prices**

*Write:*

**White, Tomkins & Courage, Ltd.  
North Albert Works, Reigate, Surrey.**

*Lemon Oil : Orange Oil : Bergamot Oil :  
Mint Oils : Buchu Oil : C.16 Aldehyde*



## MERCOLIZED WAX

— : for the Complexion : —

and

## STALLAX

— : a Shampoo : —

**TWO** substantial and well-advertised lines which show a handsome profit to the Retailer, and, moreover, may be stocked fearlessly owing to the Manufacturers' most liberal Sale or Return Guarantee.

**Both** are obtainable in two sizes, and their reputation and sterling value assure a steady turnover.

*Order through your Wholesaler, or direct from:*

**DEARBORN (1923) LIMITED**  
**37 GRAY'S INN ROAD, LONDON, W.C.1.**



# A WONDERFUL OPPORTUNITY

*Announcing*  
**Aralys**  
REGD.

a new de luxe toilet series  
*with strikingly attractive trade terms*

EVERY possible factor that could ensure the success of the new Aralys products has been carefully studied. Several years have been occupied in research and experiment, alike in regard to quality, method of production and get-up. The prevailing public taste has also been considered. Authoritative artistic opinion was consulted in the designing of all the Aralys containers. And the Ideal Home Exhibition, just concluded at Olympia, afforded a unique opportunity for obtaining public opinion quickly and satisfactorily.

The success of Aralys at Olympia was immediate. Amidst a welter of free offers and samples, the Aralys Series sold well, and every item was freely described as really exquisite and a wonderful bargain.

Most important of all for the nation-wide success of Aralys is Trade support. The goodwill towards Vinolia is, we are proud to say, real, increasing and of very long standing. But business is business, and we have, therefore, formulated terms which offer an extremely attractive inducement to carry the full range at once, and which, even on the lowest basis, make Aralys a permanently desirable Series to display and recommend.

**See page opposite  
 and act at once**

---

# NEW BUSINESS, LARGE PROFITS

---

## Exceptional Introductory Offers!

**86.3% RETURN**  
**ON**  
**£7-13-6 OUTLAY**

The ordinary list prices show a 50% profit on outlay on all Aralys creations except in the case of some of the introductory sizes. In addition, the following special offers provide striking inducement to encourage the sale of Aralys at once—

**SPECIAL DISCOUNT**— All orders which include Aralys to the value of £2 net will be sent in free cases, carriage paid, at list prices less 10% in return for a display and 2½% for cash in 28 days.

**SPECIAL BONUS**— in return for a display: 6 Beauty Boxes (retail price 2/- each) FREE with orders including Aralys to the value of £3 net; and 12 Beauty Boxes FREE on orders for £5 net, with 2 for every additional £1.

**EXTRA SPECIAL STOCKING OFFER**— An additional 10% in the case of orders including the minimum pack of the complete Aralys Series. The retail prices of this complete minimum amount to £14-6-0, and the cost to you under the special offer is only £7-13-6—86.3% profit on outlay! N.B. This extra discount makes it impossible for us to include any Bonus Beauty Boxes in this case.

These introductory offers are necessarily for a limited period only, so order now and begin to share in this profitable trade at once.

To help your sales and displays we will supply you with a fine 3-panel screen, attractive showcards and perfumed calendar cards.

# Aralys

## BEAUTY PRODUCTS

STRIKE A NEW AND  
DISTINCTIVE NOTE

Write for details and specimen order to VINOLIA CO., LTD., BEBINGTON, CHESHIRE





*The Popular Girl*



*The Young Wife*



*The Home Maker*

# Pears'

# Golden Glory

The miniature reproductions shown here are of some of the large, beautiful and sales-compelling Golden Glory advertisements which are now appearing in the National and Provincial GOLDEN GLORY Press Advertising Campaign.

*YES, I know it's a penny more than I pay for but it's worth far more than the difference. Jack always sticks to Pears' Unscented—'real man's' soap and grows badly if he does it in the bathroom—but I would not be without Glory for worlds.*

*Although I do all my own housework it does not hands in the least. The use of Golden Glory keeps them getting red as rough. I leave it in the office before I was married. It was, simply glorious.*

*Only Pears' Soap ever makes me feel so clean. I have tried many others but Pears' is the only one that makes me feel so clean. I have tried many others but Pears' is the only one that makes me feel so clean.*

**Pears' Golden Glory**  
The Modern Complexion Soap

*TALKING of toilet soaps, I used to have a lot of trouble with my girl, one wanted this, the other wanted that and never of the same mind two weeks together, but nowdays it's improved their complexion a lot.*

*I never had any trouble with father or the boys. Pears' Unscented soap I know, it suits my idea of domestic economy all right. So don't think Golden Glory I got for the girls, for I never knew that they didn't bring home the extra things for the face that they used to.*

*Only Pears' Soap ever makes me feel so clean. I have tried many others but Pears' is the only one that makes me feel so clean. I have tried many others but Pears' is the only one that makes me feel so clean.*

**Pears' Golden Glory**  
The Modern Complexion Soap

A. & F. Pears Ltd., London, Soapmakers to Their Majesties the King and Queen.

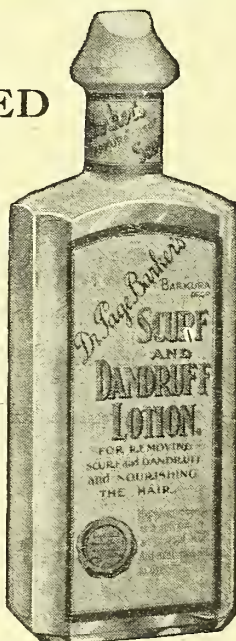
GGT 131-8

## Every Bottle is GUARANTEED

EVERY bottle of Dr. Page-Barker's Scurf Lotion bears a positive guarantee that it will eradicate scurf or the purchase price will be refunded. This makes it the easiest to sell of all hair and scalp specifics. And the profit is handsome.

18/- per Doz.  
Retail - 2/6

With every order for 3 dozen you get three 2/6 bottles as bonus, handsome metal show-stand, and attractive showcards.



## Dr. Page-Barker's

## Scurf Lotion

Thos. CHRISTY & CO., 4-12 Old Swan Lane, LONDON, E.C.4.



Specialists in the Manufacture of—

**HORSEHAIR FLESH GLOVES, BATH GLOVES &c.**

Wholesale and Export.

**LAWRENCE & CO.**

Islington Place, Cloudeley Road, London, N.1.



**GREY HAIRS**

appear just here.

TOUCH THEM UP WITH

**TATCHO-TONE**

and they will instantly recover their natural shade. Medical Guaranty with each bottle. Chemists' Prices 2/6 and 4/6

**TATCHO-TONE CO., 5 Great Queen Street, London, W.C.2**

*Trial Price*

**8<sup>d</sup>**

*Post Free*

## Tried & Proved

Rowland's Macassar Oil is no new preparation; it has been used all over the world for more than 135 years and everywhere it is held in the highest esteem. It is guaranteed to contain no injurious substance

P.A.T.A.  
3/6, 7/-  
& 10/6  
From all Wholesalers



## Rowland's Macassar Oil

A. ROWLAND & SONS, Ltd., 112 Guilford St., London, W.C.1





5 for 1/8

10 for 3/4

**a Good Blade!**

We make no exaggerated claims on behalf of our product, but instead we sell

**"ECLIPSE"**  
(Gillette Type)  
**SAFETY RAZOR BLADES**

under a definite money-back guarantee of satisfaction, particulars of which will be sent on request.

**EVERY CHEMIST SHOULD STOCK THEM.**

|         |               |            |         |
|---------|---------------|------------|---------|
| 1 Box   | 100 Blades at | £1 2 3     | per box |
| 5 Boxes | "             | at £1 1 8  | "       |
| 10 "    | "             | at £1 0 10 | "       |

Terms: Monthly, less 2½%. Carriage paid on 3 box lots and above.

**JAMES NEILL & CO. (Sheffie'd) Ltd.**  
Crucible Steel Manufacturers,  
**NAPIER STREET - SHEFFIELD.**

**G. B. KENT & SONS, LTD.**

Are known the World over as the Largest Manufacturers of

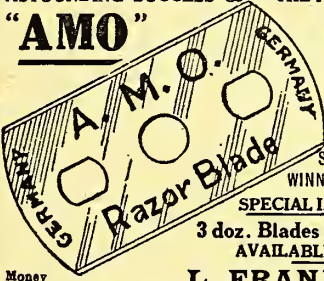
**BEST BRITISH BRUSHES**

Please write for full Particulars to—

**75 FARRINGDON ROAD, E.C.1.**

ASTOUNDING SUCCESS OF THE NEW SMOOTH SHAVING

**"AMO" BLADES**




**8/- Gross**  
Post Paid.  
SMOOTH SHAVING CAPACITY  
WINNING PUBLIC'S CONFIDENCE  
SPECIAL INTRODUCTORY BONUS  
3 doz. Blades free with each Gross.  
AVAILABLE TO JUNE 1 1928.

**L. FRANKENBERG**  
125, HOUNDSDITCH, LONDON, E.1.  
Telephone No. : AVENUE 8846. Telegrams : UZE CARNOS Ltd. London.  
Send for Free Testing Sample.

Money refunded if not satisfactory.

WHOLESALEERS PLEASE WRITE FOR SPECIAL TERMS.




**SOUPLEX**

**SAFETY RAZOR BLADES**

require no selling, merely stock them to supply the widespread demand which SOUPLEX Quality and Price have created.

First-class quality at low price—that's SOUPLEX, the popular razor blade.

Make sure of obtaining your share of the big business which is coming, by placing an order for SOUPLEX to-day with your usual wholesaler.

5 for 1/3 (Profit 5d.)  
10 for 2/6 (Profit 10d.)

**ORDER NOW**

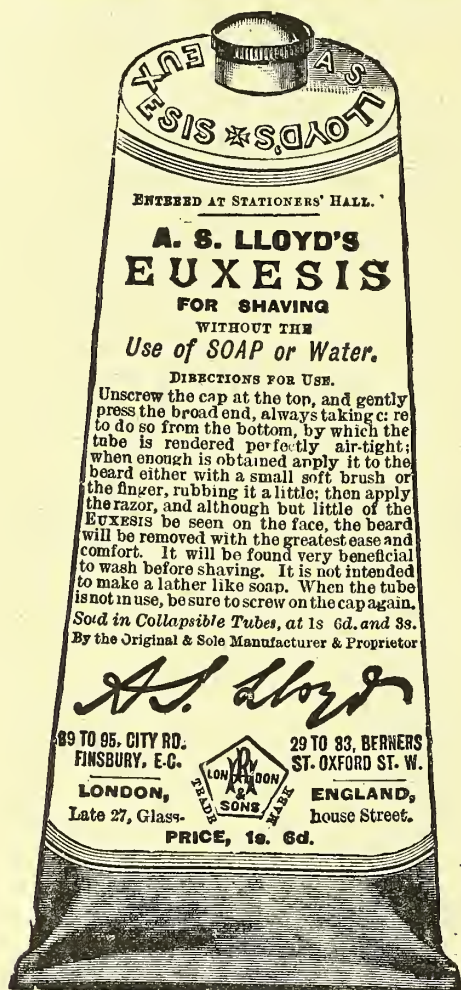
**SOUPLEX LTD.**  
**MORECAMBE**



# A. S. LLOYD'S EUXESIS

(THE GENUINE).

For Shaving without Soap, Water, or Brush.



**Sold by all Perfumers and Chemists  
throughout the world.**

R. HOVENDEN & SONS having purchased, under an administration suit, the business of the late A. S. LLOYD, with the Receipt, Trade-Mark, and Goodwill of the celebrated Euxesis, the Trade are cautioned that the original and genuine Euxesis is now manufactured at our Factory ONLY and may be obtained at either of our Warehouses.

**PRICES ON APPLICATION.**

**NOTICE.—THE GENUINE A. S. LLOYD'S EUXESIS** bears a label printed in **BLACK** only on a **Yellow** ground, with our Trade Mark at the bottom, as illustration.

**Proprietors: R. HOVENDEN & SONS, LTD.**  
LONDON: 89-95 City Road, E.C.1; and 29-33 Berners Street, W.1.



## Shingled Heads Need More Shampoos

Here is a range of Shampoo Powders—showing you an unusual profit—made by a firm that specialises in scientifically compounded preparations for the hair. These Shampoos have been used for years in a Bond Street Hairdressing Salon, yet they retail at little more than half the usual price for a good shampoo.

Shampoo Powders are a profitable and quick-selling line now that shingled heads are in the majority, for shingled hair needs regular and frequent washing to keep it in condition. And these Shampoos are so exceptionally good and reliable that customers come back for them again and again. They bring you both profit and goodwill.

|  | Retail Price                  | Net Wholesale Price       |
|--|-------------------------------|---------------------------|
| Stewart's Hairtone Shampoo Powder..                                    | 3d. each or 1/6 for 7 sachets | 12/- per dozen boxes of 7 |
| Free from excess of alkali for any kind of hair.                       |                               |                           |
| Stewart's Goldentone Shampoo Powder..                                  | 4d. each or 2/- for 7 sachets | 14/- per dozen boxes of 7 |
| A Camomile preparation for blonde hair which brightens and beautifies. |                               |                           |
| Stewart's Silvertone Shampoo Powder..                                  | 4d. each or 2/- for 7 sachets | 14/- per dozen boxes of 7 |
| Specially prepared to keep grey hair from going yellow.                |                               |                           |
| Stewart's Hennatone Shampoo Powder..                                   | 4d. each or 2/- for 7 sachets | 14/- per dozen boxes of 7 |
| For brown hair—gives richness of tone.                                 |                               |                           |
| Stewart's Pinetone Shampoo Powder..                                    | 4d. each or 2/- for 7 sachets | 14/- per dozen boxes of 7 |
| Medicated and antiseptic for impoverished hair.                        |                               |                           |

MADE BY THE MANUFACTURERS OF

**NUCTONE**  
FOR GREY HAIR

STEWART, GOODALL & DUNLOP, LIMITED,  
4 Dering Street, London, W.1.

Obtainable from your usual Wholesalers or direct from

**J. C. GAMBLES & CO., LTD.**  
211/215 BLACKFRIARS ROAD, LONDON, S.E.1.

# A. S. LLOYD'S EUXESIS.

For Shaving without Soap, Water, or Brush.

## CAUTION.

The Labels on GENUINE EUXESIS bear two signatures—  
A. S. Lloyd in black ink, and that of his Widow,  
Aimée Lloyd, in RED. Refuse any other.

*Sole Manufacturers and  
Proprietors :*

**AIMEE LLOYD & CO.**

**23 PANTON STREET (formerly named Spur Street)**  
HAYMARKET, LONDON, S.W.1

*N.B.—When ordering from Wholesale Houses write LLOYD'S EUXESIS (WIDOW'S).*

**A BIG  
SELLER**

Miniature reproduction  
of an idol, in stone,  
holding two sticks of  
incense.

They appeal to  
all classes and  
sell at sight.

**LUCKY  
AMULETTES D'ANGKOR**



RETAIL  
**1/6**

Complete with  
twelve sticks of  
Incense.

### Prices :

Per doz. .. .. 12/-  
3-doz. lots.. .. 11/-

Separate sticks of In-  
cense, in packets of 12 :

5/3 per doz. packets.  
3-doz. lots, 5/- per  
doz. packets.

*Sole Distributors  
for Great Britain*

**SPURWAY ET CIE, LTD.**  
89 GREAT EASTERN ST., E.C.2

Telegrams : "Neroli, London."  
Telephone : Bishopsgate 1372.





## An Appreciation with an Announcement

**F**OR many years we have enjoyed the co-operation of the retail trade for the distribution and sale of our products. Our appreciation is sincere because these products have been sold by the Retail Chemist without the aid of any advertising, merely in recognition of their standard of quality and value.

We are now marketing a new cosmetic preparation, LEICHNER'S SLIM FIGURE BATH No. 1001, which appeals to the general public, and we realise the need for advertising it on a large scale.

We earnestly invite your continued co-operation, and would like to draw your attention to the special offer being made separately by letter, which offer expires on April 15th.

Will you please note carefully that we have opened new offices at 11-12, Pollen Street, Regent Street, London, W.1, where we shall be very pleased to see old and new friends at any time.

Always with pleasure at your service,

**L. LEICHNER, LONDON**

S. POLLITZER, Manager.

*Overleaf you will find details of this advertising*



**L**ARGE and attractive advertisements, describing the unusual properties of LEICHNER'S SLIM FIGURE BATH No. 1001, will appear in the under-noted papers, commencing April 16th. The circulation and appeal of these newspapers and magazines will ensure our message being read throughout the country.

# LEICHNER'S SLIM FIGURE BATH

## No. 1001

LEICHNER'S SLIM FIGURE BATH No. 1001 is a *thinning* preparation acting principally on the body cells, and specially on the skin surface. It rejuvenates the skin, makes it white and soft, and increases physical well-being and general vitality, and is recommended by the medical profession.

It is harmless, does not contain any injurious medicant, and has no ill effects on the heart or the kidneys.

THE PACKET

Retailing at .. .. **2/6**



EXPORT  
ENQUIRIES  
INVITED

### ADVERTISEMENTS WILL APPEAR IN

#### *Daily Papers:*

Daily Mail  
Daily Express  
Evening Standard  
Evening News  
Daily Mirror  
Daily Sketch  
Birmingham Mail  
Manchester Daily Dispatch  
Liverpool Echo  
Yorkshire Evening Post  
Newcastle Evening Chronicle  
Nottingham Evening Post  
Glasgow Evening Times  
Glasgow Bulletin  
Edinburgh Evening News

#### *Magazines:*

Tatler  
Sketch  
Bystander  
Woman's Journal  
Vogue  
Woman and Home  
Punch

#### *Sunday Papers:*

Sunday Observer  
Sunday Times

# SUNSHINE IN THE HOME

The remarkable tonic and curative effect of the Ultra-Violet Rays may now be enjoyed in every home.

Send for particulars of our

## ULTRA-VIOLET SUN RAY ELECTRIC LAMP

A combined Portable and Stand Model, Self-adjusting, and for both Alternating and Direct Current.

All voltages from 100 to 250 inclusive. The best British Made low-price SUN RAY LAMP.

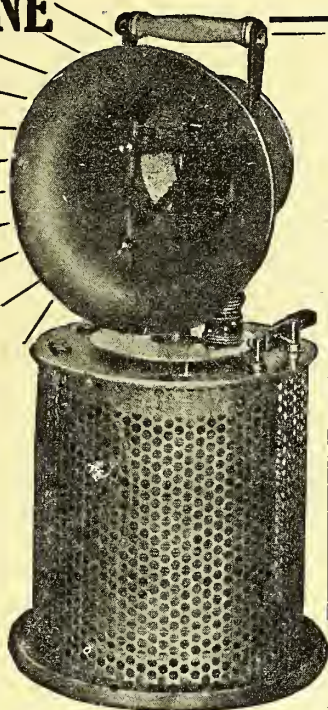
An exceptionally good selling line for the up-to-date chemist.

Price Complete:

**£5:10:0**

SUBJECT.

Full particulars on request



**Ward & Goldstone**  
PENDLETON MANCHESTER

All kinds of  
thoughtful  
display



*Manufacturers!*

YOUR GOODS  
DISPLAYED & SOLD  
TO BEST ADVANTAGE

NEW PATENT  
**"STAND-SHOWCARD"**

In one piece!  
Self-fixing!!  
Packs flat!!!

Over 1,000,000 in use

*The* **SHOWCARD  
SPECIALISTS**

27 Goswell Rd, London, E.C.1  
Phone: Clerkenwell 4283

*Let us design  
and quote you.*

## Don't Compare the FIRST Profit!



The biggest chemists in England link their reputation to ours. *Link your reputation to ours* and our advertising and display matter. The latter is yours for the asking.

| Pocket  | Shingle  | Universal | Junior |
|---------|----------|-----------|--------|
| 3/6     | 4/9      | 5/9       | 7/6    |
| Popular | Standard | Extra     |        |
| 10/6    | 15/-     | 18/6      |        |

For particulars of  
generous trade discounts  
write to your wholesaler.

You know that regular sales and repeat orders are the backbone of your business.

Certain brushes may show you a long profit on the first sale, but what else? And it will probably be only a very occasional sale because there is nothing special about the brush to create regular customers for you. Whereas there is no argument about stocking and selling the 'MASON PEARSON.'

The following facts are irrefutable :-

The 'MASON PEARSON' is the only RUBBER CUSHION BRUSH ON THE MARKET WHICH WAS INVENTED AND PATENTED by MASON PEARSON in 1885.

Since then there have been inferior imitations which try to give the impression that they also were in existence 40 years ago. This is not correct. THE 'MASON PEARSON' WAS THE ORIGINAL AND IS STILL THE BEST.

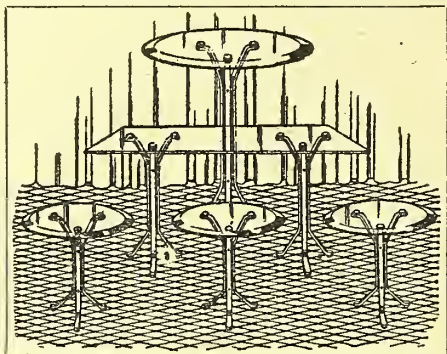
The 'Mason Pearson' during these 40 years has built up a reputation for unequalled quality. It is this reputation which makes it so easy for you to sell 'Mason Pearson' Brushes. The 'Mason Pearson' is the brush they buy regularly because one satisfied purchaser recommends it to many friends.

This is how the 'Mason Pearson' brings constant business, which shows you a hundred times more profit at the end of the year than the spasmodic profit you may make on inferior brushes.

**MASON PEARSON**  
**HAIR BRUSH**



## J. C. KING'S "DEANSgate" DISPLAY SET



### COMPRISING:—

Three Steel Tripods 9" high, three 12" × 9" Glass Ovals, 5/8" Bevelled and Polished Edges.  
Two Steel Tripods, 12" high, one 30" × 10" Glass Oblong, one long edge polished, three edges ground.  
One Steel Tripod 18" high, one 18" × 12" Glass Oval, 5/8" Bevelled and Polished Edge.  
IN BROWN BRONZE FINISH, Ref. No. M 573, or COPPER OXYDISED, Ref. No. M 574.

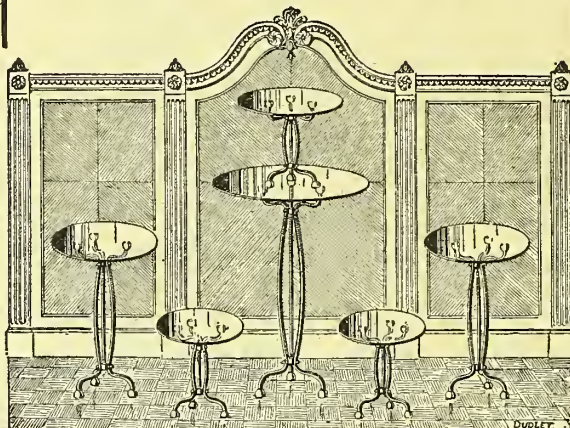
**£2 : 7 : 6 COMPLETE**

Ref. No. M 575 NICKEL PLATED FINISH £2 10 6  
All Glass is 1/4" in thickness.

SEND FOR FULL ILLUSTRATED LIST No. 931.

**J. C. KING, Ltd.,** Shopfitters to the Chemist Trade,  
42-60 GOSWELL ROAD, LONDON, E.C.1  
Telephones: Clerkenwell 2317 (5 lines). Telegrams: Mainboom, London.

## A Charming Display Set for a Chemist's Window



### THE "REGENT" DISPLAY SET.

No. C.D. 2426, consisting of Six Medium Weight Brown Bronze Tripods—one 9" high, two 12" high, two 18" high, and one 24" high. Six 1/2" glass ovals—one 24" × 18", two 18" × 12", and three 12" × 9".

This complete and delightful set **£3 : 16 : 6**

List No. C.D. 970 of Fittings sent free on request.

**DUDLEY & CO., LTD.**

558/576 HOLLOWAY ROAD, LONDON, N.7,  
and at 65 and 66 FORE STREET, E.C.

## AYRTON-GRAHAM, Ltd.

Designers and actual manufacturers of

## FITTINGS

For the MODERN PHARMACY.

Shop Fronts, Show Cases, Exhibition Cases, Counter Cases, Counters, Wall Cases, Glass Signs, etc., etc.

PHARMACIES MODERNISED.

ALL GOODS OF BEST QUALITY  
AND FINISH AT LOWEST RATES.

Competent Fitters sent to all parts.

106 DUKE STREET, LIVERPOOL.

### WESTMINSTER COLLEGE OF PHARMACY.

## WILLS' UNIVERSAL POSTAL SYSTEM

FEES (GT. BRITAIN & N. IRELAND)

|                               |   |         |
|-------------------------------|---|---------|
| PRELIMINARY SCIENTIFIC COURSE | - | £1 1 0  |
| QUALIFYING COURSE             | - | £1 1 0  |
| COMBINED COURSE               | - | £1 11 6 |
| APOTHECARIES' HALL COURSE     | - | £1 11 6 |

POSTAL COURSE PROSPECTUS POST FREE  
from The Secretary,

190 CLAPHAM ROAD, S.W.9.

### MANY SUCCESSES IN THE EXAMINATIONS

Your Opportunity to

## QUALIFY IN OPTICS

PRACTICAL WORK. Students taking the course may receive personal tuition in the practical work AT ANY TIME DURING THE COURSE.

Expert Tuition for the SIGHT-TESTING DIPLOMAS of the Worshipful Company of Spectacle Makers (F.S.M.C.); the British Optical Association (F.B.O.A.); the National Association of Opticians (F.N.A.O.); or the College of Optics (F.C.O.).

Write for full particulars—

**C. A. SCURR, M.P.S., F.S.M.C., F.B.O.A., F.N.A.O., B.Sc., F.I.O., F.C.O.**  
50 HIGH STREET, BARNET, LONDON, N.  
S.A. Representative: E. F. G. WOOLLEY, F.S.M.C., M.P.S., c/o H. Neil & Co.  
215 Bree St., Johannesburg.  
N.Z. Representative: R. C. AITCHISON, Box 158 PALMERSTON, North.



## THE NATIONAL ASSOCIATION OF OPTICIANS

CHEMIST-OPTICIANS are invited to apply for MEMBERSHIP of the N.A.O.

The next Examination for the FELLOWSHIP DIPLOMA will be held at the BIRMINGHAM AND MIDLAND INSTITUTE, BIRMINGHAM, in July next, 1928.

Syllabus, Entrance Forms and full particulars from the Secretary, N.A.O., 130 Princes Road, Liverpool.

'Snaps' put the 'Finishing Touch' to a Holiday!



If you do not  
own a camera,  
Buy one!

## Easter 'snaps' on Illingworth's

"the Fast Film in  
the Bright Blue Box"

**Speed**

you must have, especially just  
now when the light is not very  
strong. Easter's early this year,  
so make sure of good pictures  
by buying "Illingworth's."

**Latitude**

in photography means the  
ability of a film to cope suc-  
cessfully with variations of  
subject and lighting. The  
latitude of Illingworth's is a  
source of delight to every  
photographer.



Write for  
"CAMERA  
SNAPS"  
—a little booklet of  
Sunny Smiles and  
useful hints—FREE

**Sparkle**

is what you get in a print from  
an Illingworth Film—every  
detail sharp and clear—a print  
which just asks to be enlarged.

THOMAS ILLINGWORTH & CO LTD  
Park Royal, Willesden Junction, London, N.W.10

HERE is a reproduction of the first advertisement of the extensive campaign which we are shortly starting in the *Daily Mail* and other papers of national circulation. Do YOUR bit in the campaign by displaying our showcards and literature to the fullest advantage. Then we will both benefit.

# Illingworth's

THOMAS ILLINGWORTH & CO., LTD.,  
Park Royal - Willesden Junction, N.W.10

SEND ALL YOUR WORK TO

## Bailey's

Expert  
**PHOTO  
SERVICE**

Reliable  
for  
Speed  
and  
Quality



FILMS RECEIVED FIRST POST  
DEVELOPED, PRINTED AND  
DESPATCHED SAME DAY.

64 High Street  
Highgate Village  
London, N.6

TELEPHONE: 0663 MOUNTVIEW.

# Security

Let us Develop and Print  
for you  
Better than anyone else  
Always ready  
No uncertainties.

## Photopress

JOHNSON'S COURT, FLEET STREET, LONDON, E.C.4

Messrs.

# A. C. VALLANCE Ltd.,

Manufacturing Chemists,

West Gate, Mansfield

wish to call attention to the excellent facilities they now offer in regard to

## D. & P. also ENLARGING Photographic Specialists

Return Service for ALL work, including Enlargements. A most modern plant ensures the highest class work.

WORKS: MILTON STREET  
MANSFIELD

'Phone 689

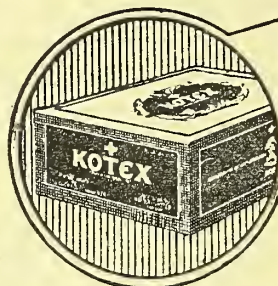


# 800,000 Kotex

## to be given away—to win more customers for you

**Put this Window Sign on YOUR window. Women will recognise it. Our advertising tells them to look for it. Link up with this advertising. Get them into YOUR store.**

**The Big Extra-Profit Spring Drive is now in full swing! Don't miss your chance! Act now!**



**KOTEX**  
Get your  
Free Sample here

Our special Free Sample advertising campaign—additional to the regular national campaign—tells women all over the country to get their Kotex Free Sample from dealers who display the Window Sign.

You display the Window Sign to remind women. They get their Free Sample from you—then come back to BUY FROM YOU at regular profits.

In the BIG CAMPAIGN 800,000 samples are being given away—through dealers.

You get 50 Free Samples of Kotex with every three dozen boxes you order. 200 Free Samples with every gross. Each sample in a sealed envelope. And a special Free Sample Carton for your Counter inviting your customers to "Take One." Together with additional counter material and the green Window Sign. All without a penny of extra expense on your part.

Send in your order to-day. Your goods will be dispatched AT ONCE—with 50 Free Samples for every three dozen boxes you order.

### 89 newspapers used during the First Week

On the opposite page we reproduce some of the striking advertisements used in the big Campaign behind the Free Sample drive.

We also give you particulars which indicate the scale on which the Big Drive is being conducted all over the country.

Get ready for Free Sample Week in YOUR area. Link up with this great advertising drive. Send in your order NOW.

# K O

PROTECTS

**KOTEX** is the new, scientific, sanitary pad—the only heavily-advertised sanitary pad in the world.

Some 30,000 Chemists, Drapers and Stores are displaying this big green Window Sign during the Kotex "Free Sample" drive. Be sure you get your share of the new business this is creating.

For the first week the Free Sample deal operated only in London and 18 South-Eastern Counties.

From March 26th to March 31st the deal is being operated in the South-Western area.

**To Dealers in the North of England, Wales, Scotland, and Ireland we wish to announce that—**

The rest of the British Isles will be covered during the week beginning April 16th.

Thousands of dealers have already made arrangements to come in on this Big Drive and have already received full particulars and material necessary. Those who have not taken advantage of the opportunity can do so by ordering NOW.

During the whole period of the big drive our regular national advertising will sell the Kotex idea—the hygienic solution of woman's oldest problem.

# Samples

**The Advertising Campaign  
behind the big drive  
Full pages and other large  
spaces**

DAILY MIRROR  
DAILY SKETCH  
MANCHESTER  
DAILY DISPATCH  
ACCRINGTON  
OBSERVER  
ASHTON-UNDER-  
LYNE REPORTER  
N.W. DAILY MAIL  
NORTHERN DAILY  
TELEGRAPH  
BLACKPOOL  
GAZETTE  
BOLTON EVENING  
NEWS  
BURNLEY EXPRESS  
BURY TIMES  
LANCASTER  
OBSERVER  
LIVERPOOL ECHO  
LIVERPOOL  
EXPRESS  
LIVERPOOL  
COURIER  
MANCHESTER  
EVENING  
CHRONICLE  
MANCHESTER  
EVENING NEWS  
OLDHAM EVENING  
CHRONICLE  
LANCS DLY. POST  
ROCHDALE  
OBSERVER  
ST. HELENS  
REPORTER  
SOUTHPORT  
VISITOR  
WARRINGTON  
GUARDIAN  
WIGAN OBSERVER  
CUMBERLAND  
EVENING NEWS  
WORKINGTON STAR

WESTMORLAND  
GAZETTE  
BIRKENHEAD NEWS  
STOCKPORT  
ADVERTISER  
CHESTER  
CHRONICLE  
SERIES  
BARNSELY  
CHRONICLE  
BRADFORD DAILY  
TELEGRAPH  
DEWSBURY  
REPORTER  
DONCASTER  
GAZETTE  
HALIFAX DAILY  
COURIER  
HARROGATE  
HERALD  
HUDDERSFIELD  
DAILY EXAMINER  
HULL DAILY MAIL  
HULL EVE. NEWS  
YORKSHIRE  
EVENING POST  
YORKSHIRE  
EVENING NEWS  
LEEDS MERCURY  
N.E. DAILY  
GAZETTE  
ROTHERHAM  
ADVERTISER  
SCARBOROUGH  
EVENING NEWS  
YORKS TELEGRAPH  
& STAR  
SHEFFIELD  
INDEPENDENT  
SHEFFIELD MAIL  
WAKEFIELD  
EXPRESS  
YORKSHIRE  
EVENING PRESS

NEWCASTLE EVE.  
CHRONICLE  
NORTH MAIL  
SHIELDS DLY. NEWS  
NORTHERN ECHO  
SUNDERLAND  
DAILY ECHO  
SHIELDS DAILY  
GAZETTE  
NORTHERN DAILY  
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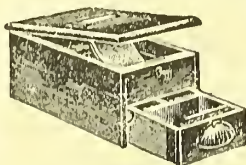
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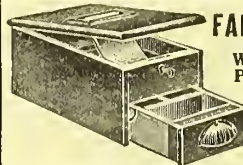
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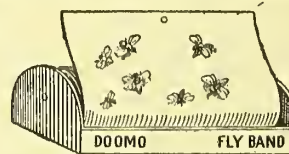


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# **WATNEY'S GRAIN SPIRIT DOUBLY RECTIFIED**

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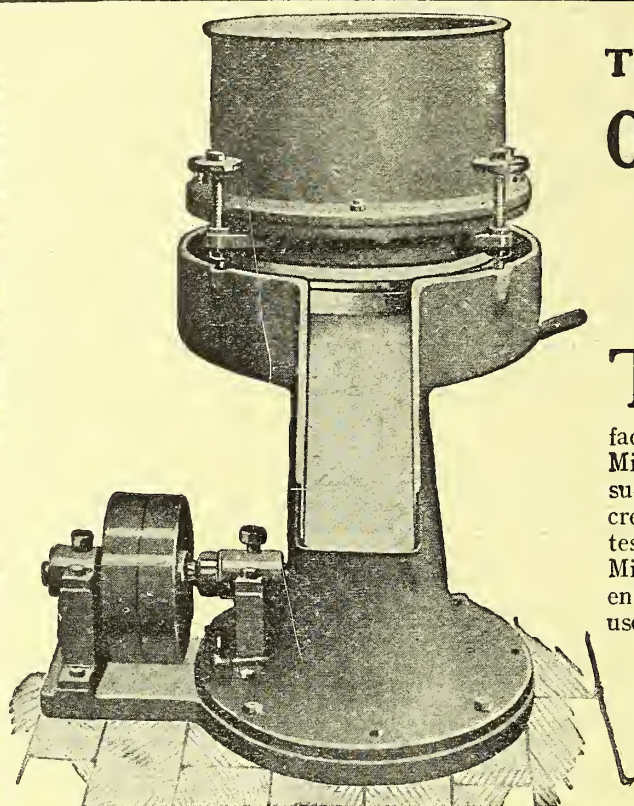
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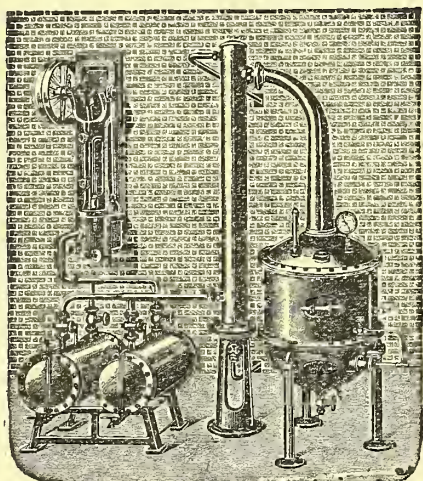
THIS ILLUSTRATION SHOWS THE NEW  
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THERE are now approximately 300 of S. W. WILKINSON's original Speedy Mills in use by British and other Manufacturing Chemists. A number of the new Mills are now in use and are giving much success and pleasure to the users and much credit to the designer and maker. Splendid testimonials have been received. The new Mill is the result of nearly 20 years' experience with the original Mill and the various uses to which it has been applied.

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Evaporating Pans. Autoclaves and Digestors.

Special Apparatus and Plant for Manufacturing Chemists.

Sole Makers of Bennett's Patent "Ideal" Annular Film Condensers.  
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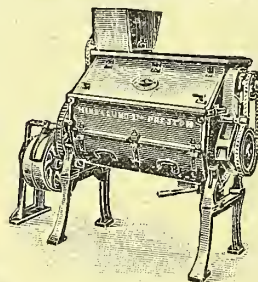
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Brown's Stills are perfectly automatic. Can be run night and day without attention. Patented in U.K. and Continental Countries.

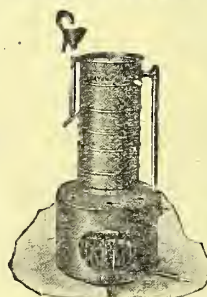
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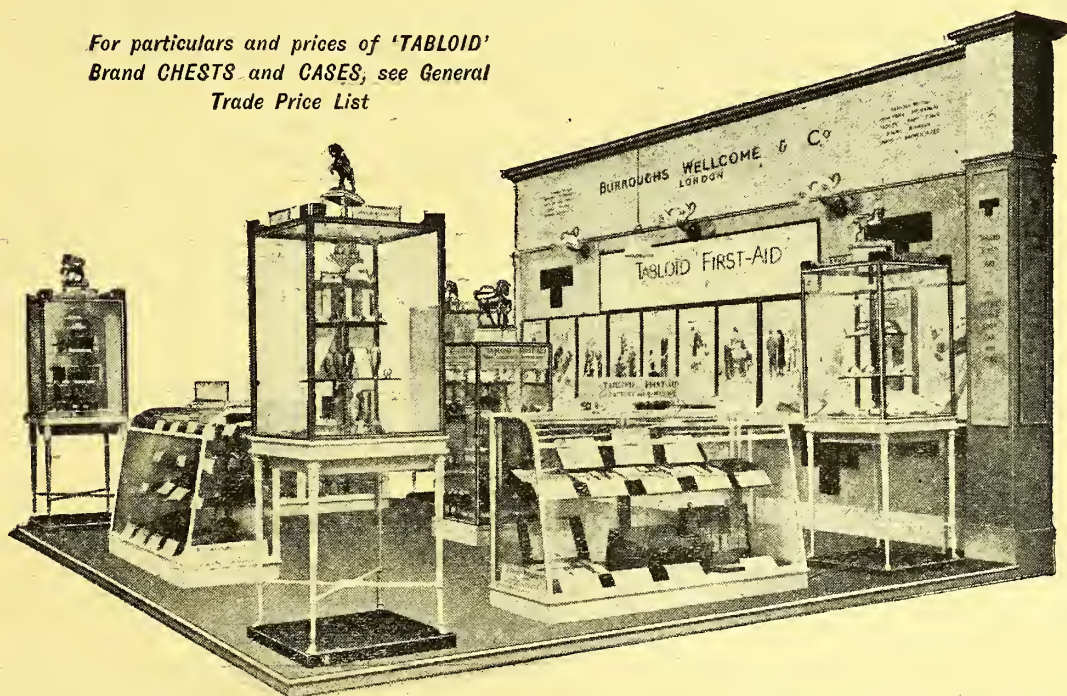
*at the*

*British Industries Fair, London, 1928*

The study of first-aid and medical equipments has always been a feature of Burroughs Wellcome & Co.'s work. They have achieved the distinction of supplying equipments to all the leading explorers, expeditions, aviators and travellers.

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*For particulars and prices of 'TABLOID'  
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LIMITED

## 'RADIOSTOL' PELLETS

Our advertising in the daily press has intensified public interest in 'Radiostol' Pellets and 'Radio-Malt,' of which good sales are reported.

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We have received repeated and insistent demands from pharmacists for a smaller or pocket package of 'Radiostol' Pellets, and we therefore offer such a size in the form of a handy and attractively decorated tin box.

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|                        |   |   |        |     |
|------------------------|---|---|--------|-----|
| 25 pellets in tin      | - | - | Retail | 2/6 |
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*Less usual discount to distributors.*

The new size will be announced in our forthcoming advertisements in the daily press.

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THE CHEMIST AND DRUGGIST is in circulation and reputation the leading journal addressing the Chemical and Drug trades in the British Empire and other countries in the Old and New Worlds. It is the official organ of the Pharmaceutical Society of Ireland, the Chemists' and Druggists' Society of Ireland, and of other Chemists' Societies in the Overseas Dominions.

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#### Series 2512

#### Vol. 108

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## Business Changes

MR. G. THISTLETON, chemist and druggist, has opened a new pharmacy at 188 St. David's Road North, St. Anne's-on-the-Sea.

MR. W. PASSMORE, chemist and druggist, has recently acquired the business of Mr. A. F. Kirkman at 69 Armley Road, Leeds.

FOWKE & SON (Mr. B. S. Jones, proprietor), chemists, Stafford, have transferred their business from Market Square to 46 Greengate.

W. MARTINDALE, manufacturing chemist (proprietor, Dr. W. H. Martindale), has, after a period of fifty-four years at 10 New Cavendish Street, had his pharmacy rebuilt and modernised at 12 New Cavendish Street, London, W.1 (wholesale entrance, 33 Hallam Street).

## English and Welsh News

The Editor will be obliged if subscribers will send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

### Inquests

An inquiry was held on March 20 concerning the death of Nancy Guthrie Fletcher, aged sixteen, daughter of Mr. J. Guthrie Fletcher, chemist and druggist, Oxhey, Watford. Mr. Fletcher, giving evidence, said that on the previous Sunday evening, in consequence of a telephone message, he went home from his shop and found his daughter lying unconscious. She died shortly afterwards. A medical witness stated that death was probably due to rupture of a blood vessel on the surface of the brain. Witness had known the deceased for many years, and she was very healthy. It was very unusual to find such a condition in one so young, and he could not account for it. Study would possibly help to rupture an artery already weak. The coroner returned a verdict of "Death from natural causes," and expressed his sympathy with the relatives.

### Contracts

The following tenders have been accepted by the bodies named:—

Bridge Guardians.—Mr. V. G. Stockwell, chemist and druggist, drugs.

Evesham Guardians.—W. J. Craven & Co., drugs.

Faversham Rural Council.—Mr. J. T. Rolfe, chemist and druggist, drugs.

Guildford Guardians.—Arthur Berton, Ltd., dressings.

Hawarden Guardians.—Mr. R. G. Dann, chemist and druggist, drugs.

Lunesdale Sanatorium.—Bate & Gorst, chemists, Lancaster, drugs.

Luton Guardians.—Mr. H. W. Kilby, chemist and druggist, drugs and dressings.

Macclesfield Guardians.—Mr. E. Brian, chemist and druggist, drugs, etc.

Pembroke Guardians.—Mr. I. Howells, chemist and druggist, drugs, etc.

Taunton Guardians.—Gregory & Wrenn, chemists, cotton-wool and lint.

Tregaron Rural Council.—Mr. E. Jones, chemist and druggist, disinfectants.

Worcester General Infirmary.—Anderson & Virgo, chemists, drugs; Mr. C. A. Steward, chemist and druggist, appliances.

### Liverpool

The city is having a busy week owing to the visit of the King and Queen of Afghanistan and the races.

A well-known city chemist has put on his window a small placard announcing: Special Naps for Race Week, viz., Cough Candy, a warm favourite; Junip, a good tip for the kidneys; Peroxide, a National winner; Chemidine, will touch the bookies' corns.

A hundred students of the Liverpool School of Pharmacy paid a visit recently to the laboratories of Evans Sons Lescher & Webb, Ltd. They were divided into parties and conducted under the direction of Messrs. Sendall (director), Turner, Maries, Manson and Cameron. During the three hours' tour of inspection all the principal departments were visited and the various processes were explained by the guides. After the visit the firm entertained the students to high tea at the Bear's Paw Restaurant. A vote of thanks was proposed by the principal, Mr. H. Humphreys Jones, F.I.C., and seconded by Mr. Wynn Davies (student). Messrs. Brinson and Sendall (directors) responded.

### Manchester

The annual meeting of the Manchester and District Chemists' Golfing Association is reported on p. 416.

The annual meeting of the Manchester Pharmaceutical Association is to be held in the Council Chamber, Houldsworth Hall, Deansgate, on April 4, at 8.30 p.m. The business includes the election of officers and a short address by Mr. L. Moreton Parry.



A Health and Hygiene Exhibition is being held in the City Hall, Deansgate, at which are exhibiting several manufacturers connected with the drug trade, including Marmite Food Extract Co., Ltd.; A. J. Mills and Co., Ltd.; the Salt Union, Ltd.; Sister Laura's Infant and Invalid Food Co., Ltd.; United Glass Bottle Manufacturers, Ltd.; and A. Wander, Ltd.

#### Miscellaneous

**CENSUS ON CLOSING-HOURS.**—A census of shopkeepers has just been completed at Bedford in connection with the Shops (Hours of Closing) Bill. The report states that about 630 replied, of whom sixty were in favour of longer hours. In one-man businesses 240 voted for present hours and 37 for longer hours. An analysis shows that twelve chemists voted for existing hours and two for longer hours.

**IN THE COURTS.**—At Doncaster Police Court, recently, Reuben Owen was fined 40s. for stealing a flask and a writing-pad, the property of Mr. James E. Wood, chemist and druggist, Doncaster Road, Armthorpe. It was stated that while Mr. Wood was away a fire broke out in his dispensary. The door had to be forced open, and several articles were stacked up outside. There were previous convictions against the accused.—At Hull, on March 21, Mr. William G. Bennett, chemist and druggist, Chanterlands Avenue, was charged with having stolen sums of £11 and £49 5s., belonging to the Postmaster-General and with falsification of accounts at the sub-post office of which he was in charge. It was stated that all the money had been repaid, and that the defendant could have obtained assistance from his friends. A fine of £50, with costs, was imposed.

## Irish News

### P.A.T.A. Officials at Belfast

Alderman A. Higgs, J.P., president of the P.A.T.A., and Mr. H. E. Chapman, the general secretary, paid a visit to Belfast on March 21, and were met by the president and vice-president of the Ulster Retail Drug Trade Association and Mr. Fred Moore (Thomas McMullan & Co.), who entertained the guests and other members of the drug trade, together with Dr. J. A. Walsh (Dublin) and Mr. Harold Nixon (Liverpool) to luncheon. The visitors were entertained to dinner in Thompson's Restaurant by the same hosts. The company included representatives of the various drug trade associations and societies. The president of the U.R.D.T.A. (Mr. D. A. Taylor) proposed the toast of "The P.A.T.A." Alderman Higgs and Mr. Chapman replied. Alderman Higgs proposed the toast of "The Pharmaceutical Society of Northern Ireland," coupled with the names of Mr. Horatio Todd (ex-president) and Mr. W. J. Hardy (vice-president). Mr. Todd congratulated Mr. Taylor on being elected president of the U.R.D.T.A., and stated that the Pharmaceutical Society was functioning in a highly satisfactory manner. Mr. Hardy said he hoped that reciprocity with Great Britain would come soon. Mr. Kirkpatrick (secretary of the Pharmaceutical Society) also congratulated Mr. Taylor. He mentioned that 147 pharmaceutical chemists had qualified during the past two years. The next toast was that of "The North Irish Pharmacists' Association," submitted by Mr. F. Moore, coupled with the names of Mr. Adams, Mr. Edwards and Mr. Dundee. These gentlemen having replied, Mr. Todd then proposed the toast of "The Chemists' and Druggists' Society," coupled with the names of Mr. F. Storey (president) and Mr. W. E. Wilson. Mr. Storey said that their society had now accomplished all that they had set themselves out to do, and looked forward to the proposed amalgamation of the various associations. Mr. W. E. Wilson also responded. Mr. Chapman, in proposing the toast of "The U.R.D.T.A.," said he thought the amalgamation ought to prove very effective. He returned their best thanks to their hosts for the very kind reception, and asked the company to drink the health of the president and that of Mr. Mann (ex-president), the secretary (Mr. W. J. Stevenson) and Mr. A. M. Gamble. These having responded, the proceedings concluded with the National Anthem.

#### Brevities

Mr. Sydney Campbell, lately with Mr. Dale, Ph.C., has opened a new pharmacy at 97 Bishop Street, Londonderry.

Thomas Fitzpatrick, Ltd., Waterford, are appointed contractors for the supply of medicines to the Waterford County and City Infirmary for twelve months.

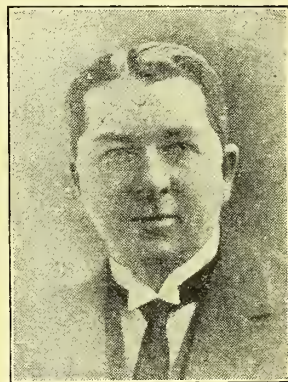
The Enniskillen Guardians have accepted the tender of the Medical and Surgical Supply Co., London and Belfast, for medical and surgical appliances, and that of Mr. F. Honey, Belfast, for medicines.

Sir William Whitla, L.P.S.I., Belfast, has presented an organ to Tyholland Parish Church, co. Monaghan. The dedication ceremony was performed by the Bishop of Clogher. Sir William's ancestors were buried in this graveyard.

At Clonmel, recently, Evans Sons Lescher & Webb, Ltd., manufacturing chemists, Liverpool, sued the co. Tipperary Board of Health to recover the sum of £67 for goods supplied and for empties not returned. For the defence it was contended that the claim was barred by statute. Mr. Walsh, for the plaintiff, said that seventeen of these cases had already been heard in the Free State, and in each case a decree had been given for the plaintiffs. The result was that the plaintiffs had literally cleared out of the country and had refused to take any more contracts there. Another firm had taken contracts, but at a much higher figure than the plaintiffs. Judge Sealy gave a decree for £36.—At Carrick-on-Shannon, recently, Messrs. Evans Lescher were granted a decree for £8 4s. 11d., with costs and expenses, against the co. Leitrim Board of Health in respect of empty cases, etc. A representative of the plaintiffs said that they had to take action against thirty-two parties in the Free State except where the Statute of Limitations was pleaded. It had cost them £74 to bring the cases, and they only recovered £35.

#### Belfast

Mr. D. A. Taylor, Ph.C., the new president of the Ulster Retail Drug Trade Association, Belfast, started business in 1893 with the firm of Samuel C. Nicholl & Co., chemists, 43 Donegall Place, Belfast, and spent six and a half years with that firm. He went as assistant to the late Mr. George W. Walker, Sandy Row, and in 1903 he took over the business of Campbell & Doyle, chemists, 117 Divis Street, Belfast. Four years ago he succeeded the late Mr. George W. Walker, and also took over the business at 82 Stranmillis Road. Mr. Taylor is also interested in cattle breeding at his ranch in Banbridge, co. Down, and is a foundation member of the Balmoral Golf Club.



MR. D. A. TAYLOR, PH.C.

Mr. T. W. McMullan, M.P. (Thos. McMullan & Co., Belfast), has been elected unopposed as a member of Belfast Harbour Board.

At Belfast Police Court, on March 24, Richard Harry was charged with maliciously breaking two plate-glass windows in the pharmacy of Mr. Thomas Mitchell, 139 Newtownards Road, Belfast, on March 19. The accused was committed for trial.

At Lurgan Children's Court John Brown (aged eight and a half) and Thomas Brown (seven and a half), High Street, were summoned for stealing a quantity of quinine and cinnamon from the pharmacies of Mr. Robert Kerr and Mr. J. M. Gorman, Market Street. A plea of "Guilty" was entered. The case was dismissed on payment of costs.



## Scottish News

### Brevities

In connection with the Scottish education authorities' elections of March 23, the successful candidates include Mr. Angus Macdonald, chemist and druggist, Dunfermline, and ex-provost George Hicks, chemist and druggist, Rothesay.

The first meeting of the Edinburgh Chemists' Golf Club was held over the Dalmahoy course on March 21. The weather was unfavourable, but twelve members attended. The scores were: Mr. R. J. Wright, 88; Mr. John Noble, 94; Mr. M. Scott, 98; Mr. J. M. Foote, 105. The next outing is to the Murrayfield course on April 25.

### Dundee

Mr. Thomas Harley, Perth, chemist and druggist, gave a lantern lecture on "A Visit to South Africa" before a representative gathering of Dundee chemists on March 23.

The annual whist drive, supper and dance of the Dundee, East and Central Scottish Branch of the Pharmaceutical Society was held on March 21. Mrs. James Anderson presented the prizes to the following winners: *Ladies*: Mrs. A. Robertson, Mrs. George Smith, Mrs. Allan, Miss Cooper and Miss Reid. *Gentlemen*: Mr. Logan, Mr. W. Doig, Mr. W. Brown, Mr. F. Lawford. The event was highly successful. The company, which numbered 150, included several representatives of wholesale houses.

### Glasgow

The British Association is this year meeting for the fifth time in Glasgow.

At a recently held meeting of the Glasgow Chamber of Commerce, Messrs. Munro, McLaren & Sutherland, druggists' sundriesmen, 17 Cadogan Street, were admitted to membership.

Under the auspices of the Glasgow Pharmacy Club, the last whist drive of the season took place on March 15. Over 100 players took part in the game for prizes given by Mrs. MacSween and Messrs. Lorimer and Moyes. The successful competitors were:—*Ladies*: Mrs. Pattison and Mrs. MacGillivray; consolation, Miss Meikle. *Lady* playing as gentleman, Miss K. MacLean. *Gentlemen*: Mr. Sweet, Mr. A. MacSween, and Mr. Jas. Clinie; consolation, Mr. Pattison. Mr. Dickson sang several songs in his usual good style, Mr. W. J. Moffat acting as accompanist. A hearty vote of thanks was accorded to the donors of the prizes and Messrs. Dickson and Moffat.

## Retail Pharmacists' Union

### Executive Committee Election Result

#### AREA 1—METROPOLITAN

Voting papers returned:—Valid, 625; invalid, 8. Percentage of returns, 42

|                     |     |                    |     |
|---------------------|-----|--------------------|-----|
| Keall, J. ...       | 577 | Clement, H. E. ... | 396 |
| Melhuish, A. R. ... | 564 | Atkins, E. A. ...  | 237 |

#### AREA 2—WESTERN

Voting papers returned:—Valid, 707; invalid, 20. Percentage of returns 67.

|                        |     |                     |     |
|------------------------|-----|---------------------|-----|
| Phillips, F. D. ...    | 329 | Tranmer, H. M. ...  | 242 |
| Marshall, H. H. ...    | 319 | Williams, W. P. ... | 223 |
| Rowland, Sir L. B. ... | 311 |                     |     |

#### AREA 3—SOUTHERN

Voting papers returned:—Valid, 735; invalid, 10. Percentage of returns, 62.

|                   |     |                    |     |
|-------------------|-----|--------------------|-----|
| Martin, H. J. ... | 564 | Rowsell, P. F. ... | 494 |
| French, J. E. ... | 511 | Jones, E. ...      | 353 |

#### AREA 4—NORTH-EASTERN

Voting papers returned:—Valid, 534; invalid, 12. Percentage of returns, 51.

|                   |     |                    |     |
|-------------------|-----|--------------------|-----|
| Gilleghan, H. ... | 401 | Jackson, J. G. ... | 315 |
| Forster, W. ...   | 359 | Twigg, J. G. ...   | 191 |

#### AREA 5—NORTH-WESTERN

##### Returned Unopposed

|                |  |           |
|----------------|--|-----------|
| Scholes, W. I. |  | Hardy, T. |
| Clubb, W. H.   |  |           |

#### AREA 6—CENTRAL

Voting papers returned:—Valid, 592; invalid, 9. Percentage of returns, 59.

|                 |     |                   |     |
|-----------------|-----|-------------------|-----|
| Carr, E. C. ... | 454 | Smalley, C. ...   | 380 |
| Hague, J. ...   | 454 | Morgan, A. W. ... | 304 |

(The names of the unsuccessful candidates are printed in italics.)

The total number of voting papers issued was 5,876, of which 3,252, including 59 invalid ones, were returned (= 55 per cent.).

### Branch Meetings

**Manchester.**—The annual meeting of the Manchester, Salford and District Branch was held on March 19, Mr. E. H. Simmons in the chair. The secretary (Mr. T. Miller) submitted the report of the executive. Strong action had been taken respecting the practice of giving presents to encourage custom, and also that of the co-operative stores giving dividends on P.A.T.A. goods. Comment was made on the meagre support of the Branch by members of the R.P.U. in the area, and an appeal was made for increased membership. The treasurer (G. H. Haines) reported a balance in hand of £2 7s. 2d. The whole of the executive was re-elected with the exception of Mr. F. W. Bates, who has resigned. Mr. W. Edwards, Trafford Bar, was elected in his stead. Votes of thanks were accorded to the chairman, vice-chairman, secretary and treasurer for their services during the past year. Mr. J. W. Bygott was elected auditor and thanked for his services. Cordial thanks were given to the Pharmaceutical Committees in the Branch area for their splendid work under trying conditions. A resolution, "That this Branch supports the Executive of the R.P.U. in the action they have taken in regard to Aspro," was carried unanimously.

**Sheffield.**—A general meeting of the Sheffield and District Branch of the R.P.U. was held on March 21. Mr. J. Gilbert Jackson, who presided, proposed a vote of condolence with the widow and family of Mr. Walter T. Harlow, Chapeltown. The chairman introduced Mr. John Keall, member of the R.P.U. Executive, who addressed the meeting on *The Present Position of N.H.I. Dispensing and A Pharmacy Week*. Mr. Keall suggested various methods by which a pharmacy week could help to educate the public on the value of the qualification. A general discussion took place. On the motion of Mr. Ryves, it was resolved to thank the R.P.U. for the work they had done on the chemists' behalf, and to offer them a vote of confidence in the many activities they are undertaking in the interest of the retailer. Mr. S. Furnival proposed a vote of thanks to Mr. Keall.

**Southampton.**—The annual general meeting of the Southampton and District Branch of the R.P.U. was held on March 21, Mr. H. Jewell in the chair. The chairman in his report referred to the past year as a very momentous one in pharmacy. He considered that the R.P.U., faced with two alternatives, had taken the right course, which would ultimately lead to better terms in the future. The treasurer reported a balance of £5 13s. 1d. in hand, which was considered satisfactory. The Pharmaceutical Committee report was presented by the secretary, and it was noted that in the Southampton area the limit of expenditure was not being exceeded. The following officers were elected:—*Chairman*, Mr. H. Jewell; *Treasurer*, Mr. W. Martin; *Secretary*, Mr. W. W. Atkinson; *Auditor*, Mr. H. R. Hussey. A discussion took place on N.H.I. analyses and a proposed reserve fund for epidemics. The following resolution was proposed by Mr. Latto and carried:—"That this meeting expresses its dissatisfaction with the methods adopted by the Palmolive Co. in reducing their soap from 6d. to 4½d. by means of the recent scheme of two for 9d., thereby resulting in many chemists being overstocked with the soap. It considers that reasonable notice should have been given in order that these stocks might be cleared." The meeting then adjourned for tea, after which a meeting of the recently formed Chemists' Publicity Association was held.



## Ulster Retail Drug Trade Association

THE annual meeting of the Ulster Retail Drug Trade Association was held on March 21, the president, Mr. A. W. Mann, in the chair. At the outset the chairman extended a hearty welcome to Alderman Higgs, J.P. (president of the P.A.T.A.), Mr. H. E. Chapman (secretary), and Dr. Walsh (Dublin). Alderman Higgs briefly replied.

### COMMITTEE'S REPORT

Mr. A. W. Stevenson (secretary) read the report, which showed that thirteen meetings were held, at which the attendance was fair, but in order to deal adequately with certain problems that affect the retail drug trade, much more could be done by a stronger co-operation between members and committee, and a stricter adherence to the principles governing the Association as such. The membership increased from 309 to 321. There were ten withdrawals, leaving 311 at present. Owing to Free State Revenue duties, a number of their members had resigned in Cavan and Monaghan. There were still a number of chemists and druggists in business who were not members of this Association. In briefly reviewing the work of the year, the committee had before them complaints relative to irregularities in carrying out the terms of contract. Warning notices were issued accordingly in the respective journals, and a memorandum set out to prevent misapplication of orders in future. Referring to correspondence with the Minister of Home Affairs on the subject of renewal of a methylated spirit licence, the reply stated that "it would appear that the applicant for the renewal of a methylated spirit licence need not, unless required by the justices, appear personally in court or be represented by a solicitor. It would, however, appear to be necessary for the applicant to be represented by some responsible person." In dealing with a letter of complaint on long hours from a chemist's assistant, forwarded by the Ministry through the Pharmaceutical Council, the committee, knowing that in certain districts of the city members had broken away from the arranged closing hour, decided to make a canvass of all members, bringing to their notice existing arrangements as to closing and supplies of urgent medicines required at night or on Sunday. A few members did not see their way to close earlier than 11 o'clock p.m. It was then arranged to call a general meeting to discuss, amongst other matters, the request for a Compulsory Closing Order at 8 o'clock p.m. At this meeting it was unanimously agreed to ask the Council of the Corporation to give effect to this request, which the Police Committee has recommended to the Council.

A conference was held with the Council of the Pharmaceutical Society relative to the sale of poisons and the keeping of a register of them by other traders. The Council satisfied the members that complaints in this respect were few, but any concrete case brought to their notice would be carefully investigated by the inspector. Arrangements were made with the Ministry of Agriculture to send leaflets to the members so that no excuse could be given after a year's requirements were noted. Resentment is felt by members in certain districts of grocers and other unqualified traders selling patent medicines at cut prices; it is also noted that small shopkeepers, mixed traders, have stocks of all leading toilet and packed articles usually sold by chemists. No way has been found to deal with this undesirable trading. Suggestions have been made—seeing the Association is so strong numerically—that distribution of chemists' goods by manufacturers, wholesale distributors or other agents should be entirely confined to the retail drug trade, and, further, that Association members insist on such an agreement when buying from representatives. The committee had before them certain instances where in provincial towns members had diverged from the U.R.D.T.A. prices to an arrangement of their own for certain articles. This arrangement, however, was not satisfactory, and after consideration the members agreed to abide by the price list, which it is hoped will be adhered to. The committee arranged for advertising

of cod-liver oil and preparations during January and February. Reports as to results from this preliminary trial have been encouraging. A suggestion was made to amalgamate three associations into one. The committee recommends their combination to the members.

Mr. W. J. RANKIN, treasurer, submitted the financial statement, which showed a balance to credit.

Mr. MANN, in moving the adoption of the reports, commented favourably on the increase in membership, and said the financial side was equally satisfactory. They had paid their way on the very small subscription of fifteen shillings per member. He wished to thank their secretary for the tremendous amount of work he had done for the Association. As to the Closing Order, for which an application had been made to the City Corporation, that body would be backed by the Association, and if there were defaulters, a few prosecutions would bring them into line. The Police Committee of the Corporation was dealing with the application, to which several objections had been made, and a plebiscite of the trade would probably be taken. As to the amalgamation of the three societies in Northern Ireland, the time was ripe for unification. Those who were present at their meetings, both Committee and general, were aware of the great confusion that existed with regard to subscriptions to the various societies. Their suggestion was for one large combined society comprising the present three, and, if they liked, under a new name; one annual subscription, and, of course, a committee representative of each section. The funds of the three existing societies would be amalgamated and devoted to a number of objects which would meet with their favourable consideration. For instance, they were urgently in need of new rooms to meet in, and what about a club? There was insurance and superannuation and many other useful ways in which their funds could be used. A subcommittee of the three societies was going to deal with the project, and he trusted something would arise out of those deliberations. Lastly, he would direct attention to the committee's efforts to devote some of the funds of the Association to advertisement. It was satisfactory to learn from quite a number of chemists that those advertisements had borne fruit. They would be glad of any suitable copy sent in to them. He could not conclude without referring to the amount of cutting that was going on with some proprietary goods. Night after night had been taken up with these complaints, but serious definite action had not yet been taken. The committee were carrying the matter still further.

Mr. F. STOREY seconded the adoption of the reports, expressing satisfaction at the healthy state of the Association and the enthusiasm displayed by the committee in the carrying on of the work.

The reports were adopted. On the motion of Mr. R. I. Edwards, seconded by Mr. W. E. Wilson, the subscription for the ensuing year was fixed at 15s.

### ELECTION OF OFFICERS

Mr. D. A. Taylor was unanimously elected president of the Association, and, in reply, said he realised the amount of work to be done. Mr. Mann had had a very strenuous year in office and had conducted the business in a very energetic and praiseworthy manner, striving for shorter working hours and greater unity in the trade, as well as amalgamation of the different societies into one body. An Association like theirs could not be successfully carried out without the co-operation of all its members, and it was the duty of all to help.

The other elections were as follows:—*Vice-Presidents*, Mr. S. Dale (Londonderry) and Mr. C. B. Abernethy. *General Committee*, Messrs. H. Todd, J.P., H. Crail, W. R. Stinson, E. J. Roberts, J. Adams, A. E. Davis, R. I. Edwards, J. McDowell, C. Williamson, F. Boyle, S. H. Forrest, J. Guthrie, S. McLoughlin, S. Orr (Lisburn), J. B. Breakey, J. A. McRoberts, G. Hamilton, and W. C. H. M'Kinty. *Wholesale Section*, Messrs. F. Moore (Thos. M'Mullan & Co., Ltd.), A. M. Gamble (Shaw & Jamison, Ltd.), F. Storey (F. Storey, Ltd.), Elliott (Elliott, Thompson & Blair); *Secretaries*, Mr. S. Suffern, 304 Shankill Road, and Mr. S. J. Hudson, 381 Beersbridge Road; *Treasurer*, Mr. W. J. Rankin; *Auditors*, Mr. W. Martin and Mr. T. Mitchell; *Representatives on Chamber of Trade*, Mr. A. W. Mann,



Mr. S. McLoughlin, Mr. A. Wilson, Mr. W. E. Wilson, and Mr. R. I. Edwards; *Representative on Ulster Development Tourist Association*, Mr. Fred Storey.

#### P.A.T.A. MATTERS

An address was given by Alderman Higgs, who congratulated the Association on its finances. Both in Dublin and Belfast he had been most cordially received, and he hoped that future presidents would come too. Alderman Higgs then spoke on the work of the P.A.T.A., and appealed to all present to join. The membership in Ireland was not so satisfactory as he would like, and that was the purpose of his visit. Mr. Chapman also spoke on the work of the P.A.T.A., dealing with it on general lines and subsequently with local conditions. There were now 441 manufacturers controlling 3,000 individual proprietary articles protected by the P.A.T.A., which was a wonderful achievement. There were now practically no cases of price-cutting in P.A.T.A. articles. The Irish membership was not high in proportion to the number of chemists, and in the North they had no reason to be particularly proud of the normal strength of their membership. The majority of the cases taken up from Belfast were satisfactorily dealt with. The cutting of P.A.T.A. articles in Belfast was not acute and was not a cause of much anxiety, and he hoped a local secretary of the P.A.T.A. would be appointed in Belfast. Dr. J. A. Walsh (Dublin) followed with some interesting reminiscences of the trade in Dublin, including the introduction of the P.A.T.A. following on the visit of Sir William Glyn-Jones in 1901. Mr. D. A. Taylor moved a vote of thanks to the speakers for their addresses. This was seconded by Mr. W. J. Hardy and passed by acclamation.

## Dublin Retail Drug Association

A LECTURE was delivered at Dublin on March 20 by Mr. H. E. Chapman, general secretary of the Proprietary Articles Trade Association, under the auspices of the Dublin and Provincial Retail Drug Association, on *The P.A.T.A.—What the Drug Trade owes to its Work*. Mr. H. J. Sumner, M.P.S.I., president of the Association, who occupied the chair, extended on behalf of the Association a hearty welcome to Alderman Higgs and Mr. Chapman.

Alderman HIGGS, who was cordially received, said that was the first occasion that the president of the P.A.T.A. had visited Dublin officially. In the 'eighties of the last century price cutting was rampant in their business, and it became a question as to whether they should all sink in it or figure in the Bankruptcy Courts. Fortunately, Sir William Glyn-Jones stepped in and rescued them from that position. Unfortunately, the sale of proprietary articles had increased considerably, the proportion of these articles being from 50 to 60 per cent. of a man's turnover in England. It was not so much their subscriptions the P.A.T.A. wanted, as their support. They wanted to make the Association a strong, living organisation, and they could only do that by throwing all their energy into it and swelling its membership roll.

Mr. CHAPMAN said that many of the chemists in Ireland who benefited materially from the work of the Association might have forgotten what things would be like if there were no such body. They had a membership of 8,000 retailers in Great Britain, Northern Ireland and the I.F.S. They had on the P.A.T.A. list 441 manufacturers who controlled 3,000 separate proprietary articles. That meant that every proprietary article of any importance sold in these islands by chemists was protected in price by the Association, and brought to its distributors a fair and reasonable rate of profit. Years ago, he said, the multiple shops and general stores people were not supporters of the Association. At the beginning, he believed, they did all they could to fight it. Now they supported the Association very keenly, and they had no better watchdogs with regard to price cutting than the managers and heads of the different multiple shop firms in England. They realised what the Association

meant to them, but it meant even more to the private chemist who had not the advantages possessed by the general stores. Mr. Chapman said he gathered that price cutting did not exist to any great extent in Ireland, although they had a great deal of trouble with it in England and Wales. There, market and street traders, small grocery and hairdressing shops devoted a great deal of attention to those widely advertised popular toilet articles which used to be at one time the prerogative of the chemist. The Association was daily engaged in dealing with sporadic price cutting in every part of the country. The Association was reducing, month by month, the number of cutters and stall-holders who handled these goods. Moreover, the manufacturers who belonged to the Association spent thousands of pounds on the work of ciphering the whole of their output, so that when purchases were made from cutters the Association was able to discover the intermediary. Last year no less than 2,500 purchases were made by members of their staff from cutters, and 50 per cent. of these led to the closing of the sources of supply. The existence of the Association, and the work it did, meant to the individual retailer, in many cases, hundreds of pounds of profit yearly.

#### VOTE OF THANKS

Mr. JOHN SMITH, M.P.S.I., proposing a vote of thanks to the president and general secretary for their addresses, said they had sown the seed for the expansion of the membership of the organisation. Their local Association, he said, could not function satisfactorily without the P.A.T.A. Their prices were based on the P.A.T.A. prices, and although they went further than that with regard to the control of prescription prices, sundries and drugs, still they owed a great deal to the P.A.T.A. for the stabilisation of the prices of proprietary articles. They must not forget that members of the Association should also make themselves entitled to the benefits of the Chemists' Defence Association.

Mr. G. A. McLEAN LEE, M.P.S.I., seconding, said there should be no difficulty in bringing at least 50 per cent. of the Free State chemists into the Association.

The vote of thanks was passed with acclamation. Ald. HIGGS, replying, said that every effort should be made to increase the membership of the Association.

Mr. CHAPMAN said he did not know any member of the Council who had safeguarded so well the rates of profit on articles added to the P.A.T.A. list as Dr. Barnes.

Mr. LEE asked if there were more members of the P.A.T.A. in Northern Ireland than in the I.F.S.

Mr. CHAPMAN said there were more P.A.T.A. retailer members in the Free State than in Northern Ireland. The members were somewhere in the proportion of 140 to 90.

Mr. F. J. FITZPATRICK, president of the Pharmaceutical Society of Ireland, also referred to the great advantages which membership of the P.A.T.A. offered.

The CHAIRMAN, in bringing the proceedings to a close, said he had no doubt that the P.A.T.A. would have a new lease of life in the country as a result of that very successful meeting, and that their own local Association would also benefit.

Among those present were:—Messrs. H. J. Sumner, M.P.S.I., president D. & P.R.D.A.; J. T. Dwyer, vice-president; Alderman Alfred Higgs, president, P.A.T.A.; H. E. Chapman, general secretary, P.A.T.A.; F. J. Fitzpatrick, president, P.S.I.; D. J. Nugent, vice-president, P.S.I.; Dr. J. A. Walsh, Jno. Smith, Dr. J. A. Mitchell, J. P. Lamphier, R. A. Brunner, P. A. Brady, P. J. Killackey, M. J. Timoney, W. Jones, A. H. Oliphant, R. J. Hardy, J. Maguire, T. G. Smith, F. J. Robinson, R. B. Brown, E. Montague, T. C. Scott, James Duggan, Henry S. Missetar, J. M. Winckworth, J. MacDonnell, B. R. Allshire, G. H. Batt, W. B. Conyngham, M. L. Ryan, G. Fitzpatrick, J. J. Roche, D. J. O'Brien, A. J. Cahill, G. A. McLean Lee, R. E. Campbell, J. Morrow, H. Conyngham, S. A. Rosenthal, and Miss M. D. Oliphant.

THE National Health Insurance fund accounts for the year 1926 have been published (Stationery Office, 9d.) as a parliamentary paper.



## Westminster Wisdom

Notes on Parliamentary Matters.

### SAFEGUARDING OF INDUSTRIES

The President of the Board of Trade, replying to a question by Mr. Hannon on March 27, stated that forty-eight applications for safeguarding have been received. Twenty have been referred to committees for inquiry; in seven of these cases safeguarding duties have been imposed, and in five the committees' reports are pending. In four other cases duties have been imposed in Finance Acts.

### TETRA-ETHYL LEAD

Sir Kingsley Wood, in reply to a question by Lieutenant-Commander Kenworthy, stated on March 28 that the composition of the committee on ethylated motor spirit is now practically complete, and it is hoped to make an announcement in the course of this week. The terms of reference are "to inquire into the possible dangers to health resulting from the use of motor spirit containing lead tetra-ethyl or similar lead containing compounds, and to report what precautions, if any, are desirable in connection with the use or handling of such motor spirit." It is impossible to say when the report may be expected.

### LANDLORD AND TENANT ACT

In reply to a question put by Mr. E. Brown with reference to the fact that March 25—the date on which the Landlord and Tenant Act, 1927, came into operation—was a Sunday, the Home Secretary (Sir W. Joynson-Hicks), on March 27, stated that Section 23 of the Act provides that instruments under the Act may be served in one of three ways—by personal service, by leaving the instrument at the last known place of abode of the landlord or his agent, or by sending the instrument by registered post. He was advised that of these three methods, the first two would constitute good service, even though service was made on a Sunday. As regards the last, the question is not altogether free from doubt, and, if it appears that tenants have been damaged in this respect, he was prepared to consider the matter further.

## Legal Reports

**Injunction Granted.**—In the Chancery Division, London, on March 28, Mr. Justice Clauson heard an application by Gollin & Co. (Proprietary), Ltd., and Aspro, Ltd., against Mr. B. Pearce, chemist and druggist, 234 Warwick Road, Sparkhill, Birmingham, for an injunction to restrain the defendant, his servants or agents from selling or causing to be sold under the title of "Aspro" any aspirin or other tablets made by defendant or under his direction or sold by him, unless made by the plaintiffs, Aspro, Ltd., and also to restrain the defendant from packing or causing to be packed any such aspirin or other tablets in packets or containers made or supplied by the plaintiffs, Aspro, Ltd., and marked with their registered trade mark "Aspro" and supplied to the defendant for advertising or other purposes, and from doing any other thing to induce the belief that such aspirin or other tablets were Aspro or were manufactured by the plaintiffs. Mr. Archer, K.C., for the plaintiffs, said the motion was to restrain certain passing off. The plaintiffs were respectively distributors and manufacturers of Aspro. What had happened was that tablets were sold by means of a dummy carton supplied, marked "Dummy" for the purpose of being exhibited in Mr. Pearce's window. Mr. J. A. Read, on behalf of the defendant, said Mr. Pearce was willing to admit he had made a mistake, to treat the motion as trial and to submit to a perpetual injunction, paying the costs. He admitted he made an error on one occasion, but did not admit more. The judge said he quite saw there might have been a mistake. The defendant would submit to a perpetual injunction in the terms of the notice of motion and give the undertaking asked for by the plaintiffs.

**Turpentine Award: Appeal.**—The Court of Appeal, consisting of Lords Justices Scrutton and Sankey and Mr. Justice Romer, delivered judgment on March 26 in the case of Hannam v. Arp and others on an appeal by Mr. A. F. C. Arp, shipowner, Hamburg, from a judgment of Mr. Justice Roche (*C. & D.*, 1927, II, 806; 1928, I, 342), who found that turpentine was shipped by the Florida Naval Export Co., U.S.A., to Farnan & Co., brokers. The Florida firm discounted bills for the price of the oil with the National City Bank of New York, who sent the discounted bills, together with the shipping documents, to this country. Farnan & Co. accepted the bills and induced Gerald Quin, Cope & Co. to take up the shipping documents. On discharge from the ship the goods should have been sold under a stop at the wharf of the Thames Oil Wharf Co. for account of Gerald Quin, Cope & Co. On paying for part of the consignment, Farnan & Co. might legitimately have got the stop on the portion of the turpentine raised by Gerald Quin, Cope & Co. What happened was that a Mr. Killick, who was in control of Farnan & Co. after 1926, wrongfully obtained possession of the oil in dispute on the faith of a letter of indemnity which the National Provincial Bank, Ltd., the third parties to the suit, innocently gave. In these circumstances, Mr. Justice Roche held that the shipowner was liable to the plaintiffs in the sum of £7,000, and the shipowner was entitled to an indemnity from the third parties, the National Provincial Bank, Ltd. In delivering judgment, Lord Justice Scrutton, having stated the facts, which he remarked were very difficult to ascertain, said that in his view there was a conversion on November 12, 1926, when the ship's agents gave a delivery order to Farnan & Co. without production of the bills of lading. The reply of the ship was that delivery was given to the agents of Gerald Quin, Cope, the Thames Oil Wharf. In his view the ship failed to show that the goods were delivered to the agents of Gerald Quin, Cope, so as to defeat their claim of conversion. Halfway through the trial the National City Bank of New York were added as plaintiffs, and the judgment was given in their favour for £7,000, though they had been paid in full. That would be altered, and judgment would be entered for £7,000 for the partners in Gerald Quin, Cope & Co. The judgment in favour of the National City Bank of New York would be reduced to 1s. With that exception the appeal would be dismissed. Lord Justice Sankey and Mr. Justice Romer concurred.

### Private Arrangements

**Re William Charles Longstaff**, chemist and druggist, Moor Pharmacy, Colliery Row, Fencehouses, co. Durham.—A meeting of the creditors was held recently at the offices of Mr. A. J. Gray, accountant, Sunderland, when the statement of affairs presented showed liabilities £663 14s. 5d. due to unsecured creditors. In addition there were fully secured creditors for £99, holding security valued at £105. The assets consisted of stock £500, estimated to realise £300; fixtures, fittings, etc., £100; household furniture, £20; book debts, £30; and surplus from secured creditors, £6, making a total of £456. After allowing £39 4s. 3d. for preferential claims, the net assets were £416 15s. 9d., or a deficiency of £246 18s. 8d. It was reported that the debtor commenced business at Fencehouses in September, 1911, with a capital of £600. Since that time an overdraft at the bank to the extent of £150 had been guaranteed. The business was carried on favourably until the coal strikes, which seriously affected the trade in the district. A resolution was passed confirming the deed already executed to Mr. Gray, and it was stated that efforts would be made to dispose of the business as a going concern. The following are creditors:—Ayrton, Saunders & Co., Ltd., £20; Bleasdale & Co., Ltd., £35; Gibbs, D. & W., Ltd., £12; Grossmith, J., & Sons, £24; Harkness, Beaumont & Co., £15; Hirst, Brook & Hirst, Ltd., £14; Kodak, Ltd., £16; Lofthouse & Saltmer, Ltd., £45; Raimes, Clark & Co., £32; Swales, Thos., £37; Ucal, Ltd., £33; Wilkinson & Simpson, Ltd., £36; Bankers, £174.



## New Companies and Company News

**P.C. means Private Company and R.O. Registered Office.**

**HURST, SON & PAGE, LTD. (P.C.).**—Capital £2,000. Objects: To take over the cash chemist's business carried on at 16 Market Place, Boston, Lincs., by Mr. S. J. Hurst.

**CHRISTIES (CHEMISTS), LTD. (P.C.).**—Capital £500. Objects: To carry on the business of chemists, druggists, dealers in photographic materials, dentists, opticians, etc. R.O.: 75 Meanwood Road, Leeds.

**V. J. WOOLLS, LTD. (P.C.).**—Capital £15,000. Objects: To acquire the business of a chemist and druggist now carried on by V. J. Woolls at 16 Cecil Square, Margate, and branches, as "V. J. Woolls." The directors are V. J. Woolls and Margaret Woolls. R.O.: 16 Cecil Square, Margate, Kent.

**L. ROWLAND & Co., LTD. (P.C.).**—Capital £5,000. Objects: To acquire (1) the business carried on as "L. Rowland & Co." by L. B. Rowland at 9 High Street, Wrexham, and at Brymbo, Chirk, Coedpoeth, Glynceiriog, Holt, Llay, Pentre, Broughton and Rossett, all in the County of Denbigh, and at Montgomery, and (2) the business carried on as "L. Rowland & Co." by the said L. B. Rowland and G. R. K. Mawer in partnership at Ruabon, Rhosllanecrugog, Johnstown and Penycae, all in Denbigh, and at Overton-on-Dee, Flint, and to carry on the business of chemists, druggists, photographers, photographic dealers, etc. The first directors are L. B. Rowland, L. Rowland, and C. R. K. Mawer (all chemists and druggists). R.O.: Mitre Buildings, Wrexham.

**HALL, FORSTER & Co., LTD.**—Mr. J. E. M. Sim, of Carlisle, has been appointed a director of Hall, Forster & Co., Ltd., Newcastle-upon-Tyne. Mr. Sim is well known in the North, having represented his firm there for over fifteen years. He is, at present, chairman of the Carlisle Branch of the U.K. Commercial Travellers' Association. Other recent additional appointments to the board of directors of Hall, Forster & Co., Ltd., are Mr. Norman E. Forster, Ph.C.; Mr. John H. Riddell, chemist and druggist; also Mr. J. W. Reid, who has been secretary to the company for nine years, and has altogether completed over eighteen years' service with the company.

**WRIGHT, LAYMAN & UMNEY, LTD.**—The report of the directors for the year ended December 31, 1927, shows that the year's trading has proved satisfactory. After providing for directors' salaries as departmental managers, staff bonus, bad debts, depreciations, pensions and income tax, there is a trading profit, including income from investments, of £38,195. Adding the amount brought forward (£5,894 9s.), there remains to the credit of profit and loss £44,090. From this the following appropriations have been made:—Dividend of 6 per cent. on preference shares (less tax), £4,320; interim dividends of 10 per cent. on £90,000 ordinary shares (less tax), £7,200; directors' fees, £4,400, making a total of £15,920, and leaving a balance of £28,170. The directors recommend that this amount be apportioned as follows:—Payment of a further dividend of 15 per cent. on the ordinary shares, making 25 per cent. for the year 1927 (less tax), £10,800; payment of a bonus of 2s. per share on the ordinary shares (less tax), £7,200; carry forward to 1928 the balance of £10,170. During the past year considerable additions have been made to the freehold factory at Park Street. Three large fireproof floors have been constructed in steel and concrete, intercommunicating with the previously existing premises. Automatic fire sprinklers are now installed throughout the entire factory; the new extension has been fully equipped with plant and machinery, and greatly improved facilities have been provided for the transport department. Provision for anticipated requirements in the future has been made by the acquisition of an adjacent area of freehold land. Mr. E. B. Layman retires from the Board by rotation and offers himself for re-election.

**THE BRITISH DRUG HOUSES, LTD.**—The annual general meeting was held at the Midland Hotel, London, N.W., on March 27. Mr. Charles Alex. Hill, Ph.C., B.Sc. (chairman and managing director), presided, and in the course of his speech, moving the adoption of the report and accounts for the year ended December 31, 1927 (*C. & D.*, March 24, p. 374), said that the trading profit amounted to £57,979. After deducting prior charges, and paying the dividend on the preference shares, there was a balance of £36,951. The prior charges include amortisation of leaseholds and depreciation of plant. The amount written off these assets was £3,000 more than in 1926; at the same time the various properties and plant thus written down have been maintained in a condition of thorough efficiency. Dealing with the balance-sheet, on the liabilities side, the item "sundry creditors" is now only £50,000, that was £10,000 less than 1926; and the item "amount due to bankers," which was on account of advances made against bills for collection in respect of export trade, had disappeared. Turning to the assets, freehold and leasehold properties and plant, machinery, etc., are respectively slightly less than the previous year, due to the fact that the amounts written off exceeded the additions to these items. Stock-in-trade and sundry debtors were practically the same, being £1,000 and £2,000 less respectively. The item for expenditure on publicity carried forward represents a small portion of the money spent during 1927 on advertising, publicity, and propaganda work in connection with certain of the company's leading specialities and proprietary products, the results of which could not accrue to the company in 1927, but which will accrue in 1928 and subsequent years. The balance-sheet disclosed the strength of the company's financial position, evidenced by the improvement in the assets position. More than half of the capital was liquid. It would be observed that the current assets—stock-in-trade, sundry debtors, and cash—total £441,000, and the current liabilities a mere £50,000, so that these had a net surplus of nearly £400,000. The item "Goodwill" does not figure in the balance-sheet; nor does the item "Reserve Fund," but this year a beginning is made with £10,000. Having dealt with the difficulties of trading during the year, which industrially was not good, the Chairman said that in spite of this, the company's business during 1927 showed a very satisfactory increase over 1926, this increase being equally divided between home and export trade, and was traceable in both markets to a greater demand for the company's special products. The Chairman then dealt with the position under the National Health Insurance dispensing, remarking that, "Owing to the undue restriction of money allotted by the State to the supply of 'drugs and appliances' under the National Health Insurance Act, it would appear that there has arisen, after a period of years, the present financial shortage which is now being felt acutely and which may produce in the near future a critical position. Administrators, prescribers, and dispensers alike are all forced into a policy of stringency, while at the same time the Insurance Committees throughout the country so scrutinise the nature and extent of prescribing generally as to effect either a reduction of the quantity prescribed, or a restriction of the free will of the prescriber as to the drugs and medicines that he can order. While in some areas, largely owing to the character of the locality—industrial or rural—or to the type of the insured population, they can manage fairly well, yet it would appear that there is not enough money available in the national pool for the provision of an unfettered service of 'proper and sufficient medicines,' and as a result there arises the undesirable policy of 'cutting the coat according to the cloth.'" The Chairman felt it right to call attention to this state of affairs, in view of the possibility that these economies may develop to such a degree as to operate to the detriment of the insured person and of the national health. Concluding, the Chairman, on behalf of the company, expressed his warm appreciation and thanks for the excellent and loyal assistance and co-operation which they had received from the staff and workpeople in every grade and department. The Chairman finally moved the adoption of the report, which was passed unanimously.



# The Progress of Pharmacy

## AND ALLIED SCIENCES

### PHARMACY

**Syrupus Hercini Mentholatus.**—According to "Svensk Farmaceutisk Tidskrift" (December 30, 1927), this preparation has the following composition:—

|   |            |
|---|------------|
| Menthol ... ..  | 0.015 gram |
| Heroin hydrochloride ... ..                               | 0.06 gram  |
| Sugar ... ..  | 25 grams   |
| Glucose ... ..  | 30 grams   |
| Tincture of <i>Artemisia abrotanum</i> q.s. ad 100 grams. |            |

**Bithyol DAK.**—Unguentum zincicum ichthyolatum (Formulary of the Danish Association of Pharmacists, 1928):—

|                           |           |
|---------------------------|-----------|
| Ichthyol ... ..           | 10 grams  |
| Ammonium tannol ... ..    | 5 grams   |
| Borax ... ..              | 1 gram    |
| Hamamelis water ... ..    | 150 grams |
| Wool fat ... ..           | 300 grams |
| Zinc oxide ... ..         | 200 grams |
| Soft paraffin ... ..      | 351 grams |
| Oil of saffrafrass ... .. | 3 grams   |

**Tablettæ Tonica DAK.**—Formulary of the Danish Association of Pharmacists, 1928:—A mixture of:—

|                                       |           |
|---------------------------------------|-----------|
| Reduced iron ... ..                   | 250 grams |
| Quinine phosphate ... ..              | 50 grams  |
| Strychnine phosphate ... ..           | 1 gram    |
| Arsenious acid ... ..                 | 1 gram    |
| Dry extract of cascara sagrada ... .. | 5 grams   |
| Arrowroot ... ..                      | 123 grams |

is moistened with about 80 grams of alcohol (61 per cent.), passed through a sieve and granulated. The product is then dried at about 40° C., mixed with 20 grams of talc and compressed into 1,000 tablets, each weighing 0.45 gram.

**Tablettæ Phenacetylī DAK.**—Formulary of the Danish Association of Pharmacists, 1928:—A mixture of:

|                             |           |
|-----------------------------|-----------|
| Phenacetin ... ..           | 250 grams |
| Acetylsalicylic acid ... .. | 250 grams |
| Heavy magnesia ... ..       | 35 grams  |
| Arrowroot ... ..            | 65 grams  |

is moistened with acetone (about 100 grams), passed through a sieve and granulated. After setting aside for twenty-four hours the product is dried for two hours at about 50° C., whereupon 30 grams of arrowroot and 20 grams of talc are added, and the mixture is compressed into tablets each weighing 0.65 gram.

**Tablettæ Capa DAK.**—The Formulary of the Danish Association of Pharmacists, 1928, gives the following process for the preparation of these headache tablets:—A mixture of 50 grams of caffeine, 150 grams of acetanilide, and 150 grams of phenacetin is liquefied by warming on a water bath, then stirred till cool, set aside for 24 hours, and powdered. To 350 grams of this powder add 70 grams of powdered arrowroot and sufficient mucilage of acacia (5 per cent.)—about 100 grams—and granulate. Dry the product at about 30° C., and to 420 grams add 150 grams of antipyrine and 30 grams of talc; compress into tablets each weighing 0.6 gram.

**Scarlet Red Dry Dressing.**—J. M. Barbour contributes the following note to the "British Medical Journal" of March 3, 1928: I should like to recommend a dry preparation of scarlet red incorporated into hospital lint for the treatment of

indolent ulcers. It is prepared as follows:—A solution is made of 20 gr. of a Biebrich red (chemically known as *m*-xylene-azo-betanaphthol-3.6—disulphonic acid) in a pint of cold water with 2 per cent. of powdered allantoin. The lint is immersed in this solution for two days, during which period it should be occasionally compressed, so that the solution may thoroughly permeate the material. Without wringing or the use of artificial heat it is allowed to dry, and is then ironed at a low temperature. These details, even if only roughly followed, will furnish a satisfactory dressing, which should be applied at least twice a day, the material employed being cut exactly to the size and shape of the ulcer.

**Benzoin Milk.**—H. C. Newton ("Journal of the American Pharmaceutical Association," Vol. XVI, No. 12, 1927) describes a certain and convenient method of preparing benzoin milk of the formula:—

|                       |       |
|-----------------------|-------|
| Tr. benzoin ... ..    | 4     |
| Glycerini ... ..      | 6     |
| Aq. rosæ, q.s. ... .. | ad 60 |

The method advocated is to mix the glycerin and rose water and pour about one fluid ounce of this mixture into a conical glass measure. The tincture of benzoin is drawn into a clean dry bulb pipette and any tincture adherent to the outside carefully wiped off. The end of the pipette is immersed to the bottom of the conical measure, and its contents ejected by a sharp squeeze of the pressure bulb. A perfect cream results, which may be diluted to the required volume without danger of flocculation. The simplicity and unvarying success of the method leave but little to be desired.

### Standardisation and Stabilisation of Fluid Extracts.—

E. E. Swanson and C. C. Hargreaves report in the "Journal of the American Pharmaceutical Association" (January 1928) upon standardisation and prevention of deterioration of fluid extracts of gelsemium, nux vomica, and veratrum. They find that the bio-assay and alkaloidal assay of nux vomica give correlative results, and that there is no need for control of hydrogen ion concentration to stabilise the galeical. Fluid extract of gelsemium also seems immune to variation in PH value, but only bio-chemical assay is reliable, chemical assay varying between 57 and 100 per cent. of the lethal activity to white mice. The alkaloidal determination of veratrum is inaccurate, being 31 to 71 of the bio-assay. It would appear that some definite PH value is needed to prevent deterioration of fluid extract of veratrum, but further investigation is required to ascertain definitely the most suitable hydrogen ion concentration.

**The Causes of Precipitation in Galenicals.**—Wilbur S. Scoville ("Journal of the American Pharmaceutical Association," Vol. XVI, No. 12, 1927) records the results of experiments to ascertain the causes of precipitation in tinctures and fluid extracts. The aim of the investigations was to ascertain the effect of (1) light; (2) acidity as hydrochloric acid; (3) alkalinity as ammonia; (4) oxidation as peroxide of hydrogen; (5) reduction in the form of hypophosphorus acid; (6) carbonation by saturation with carbon dioxide; (7) saline buffering; and (8) dehydration, both by means of sodium acetate. The samples were kept under close observation until precipitation appeared, and then examined at intervals during



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the first year. In general there was no material change after the first year during the four-year period of the tests. The thirty-one galenicals were subdivided into groups, as follow:—

### I.—Alkaloidal Drugs

|                          | Menstruum<br>per cent.<br>alcohol | Per cent.<br>alkaloid |
|--------------------------|-----------------------------------|-----------------------|
| Red cinchona ... ..      | 77                                | 0.31                  |
| Cinchona calisaya ... .. | 77                                | 0.82                  |
| Kola ... ..              | 64                                | 0.75                  |
| Lobelia ... ..           | 49                                | 0.195                 |
| Sanguinaria ... ..       | 58                                | 2.55                  |

### II.—Cathartic Drugs

|                           | Menstruum<br>per cent.<br>alcohol | Per cent.<br>extractive |
|---------------------------|-----------------------------------|-------------------------|
| Aloe ... ..               | 49                                | 47.3                    |
| Frangula ... ..           | (water)                           | 9.6                     |
| Juglans ... ..            | 49                                | 12.3                    |
| Rhubarb ... ..            | 49                                | 19.7                    |
| Senna, Alexandrian ... .. | 33                                | 11.9                    |
| Senna, Tinnevely ... ..   | 33                                | 15.4                    |

### III.—Astringent Drugs

|                              | Menstruum<br>per cent.<br>alcohol | Per cent.<br>extractive |
|------------------------------|-----------------------------------|-------------------------|
| Castanea ... ..              | (water)                           | 8.54                    |
| Gambier ... ..               | 49                                | 36.4                    |
| Geranium ... ..              | 58                                | 15.9                    |
| Hamamelis ... ..             | 33                                | 8.9                     |
| Krameria ... ..              | 49                                | 11.2                    |
| Rhus glabra (bark)... ..     | 49                                | 15.1                    |
| Rhus glabra (berries) ... .. | 49                                | 5.4                     |
| Rosa ... ..                  | 49                                | 22.4                    |
| Prunus virginiana ... ..     | 24                                | 8.48                    |
| Quercus ... ..               | 49                                | 6.96                    |

### IV.—Miscellaneous Drugs

|                         | Menstruum<br>per cent.<br>alcohol | Per cent.<br>extractive |
|-------------------------|-----------------------------------|-------------------------|
| Cinnamon, cassia ... .. | 64                                | 18.3                    |
| Cinnamon, Ceylon ... .. | 64                                | 11.2                    |
| Cinnamon, Saigon ... .. | 64                                | 10.8                    |
| Chion anthus... ..      | 73                                | 23.6                    |
| Glycyrrhiza ... ..      | (water)                           | 12.8                    |
| Iris versicolor ... ..  | 95                                | 8.3                     |
| Salix nigra ... ..      | 49                                | 8.4                     |
| Senega ... ..           | 64                                | 17.7                    |
| Stillingia ... ..       | 49                                | 5.1                     |
| Uva ursi ... ..         | 32                                | 19.8                    |

The conclusions from the detailed results are mainly of value in eliminating certain questions in regard to precipitation in galenicals, as most of the data are negative rather than positive.

*Light* is evidently not a serious factor, possibly owing to the dark colour of the liquids. Only five galenicals showed increased precipitation, and of these two were doubtful.

*Acidity* increased precipitation in twelve instances, including ten drugs belonging to the astringent and cathartic groups. In eighteen galenicals there was no effect. Castanea, geranium, and rose showed slight retardation of precipitate formation, but the amount was not diminished at the end of four years. In the case of cinchona the addition of acid to the menstruum increased the stability, but acidification of the percolate did not produce the same effect.

*Alkalinity* was the only line of experimentation giving uniform results. Making alkaline to litmus with ammonia caused precipitation in every case, and usually at once. Precipitation even occurred with liquorice, senega and rhubarb, which have been regarded as requiring alkali to hold their constituents in solution. As with acid, the addition of an alkali to the percolate is different to that when it is included in the menstruum.

*Oxidation* is a minor factor in inducing precipitation.

*Carbonation* showed slight beneficial effect in five samples.

*Reduction* with hypophosphorus acid increased precipitation in twenty galenicals, and had no effect upon eight others. It retarded precipitation in castanea, gambier and quercus.

Sodium acetate has an action in which alkalinity is complicated by dehydrolysis. The latter action was beneficial in at least eighteen galenicals—a larger proportion than any other agent.

The results as a whole support the theory, that the leading factor in precipitate formation is hydrolytic action. The preservative action of the stronger alcohols, glycerin, and sugars on the principles in solution is best explained by their dehydrolysing action. European pharmacists have long favoured the use of stronger alcohols for the preparation of fluid extracts than has been the practice in America, and it would appear as though they were nearer to the right procedure for stabilisation of galenicals.

### PHARMACEUTICAL CHEMISTRY

**Vitamin-A Estimation in Cod-Liver Oil.**—A report, signed by Sir F. Gowland Hopkins and Harriette Chick, has been presented ("Lancet," 1928, p. 148) to the League of Nations Health Organisation on the estimation of vitamin A in cod-liver oil, a series of experiments having been undertaken on seven samples, with the object of testing the validity of the colorimetric method of Rosenheim and Drummond in comparison with the biological method. Dr. Rosenheim undertook the colorimetric estimations (with  $\text{AsCl}_3$  and  $\text{SbCl}_3$ ), with the result that agreement within  $\pm 0.50$  units was reached in respect of the same samples by two independent observers—the usual difference in colorimetric work. The biological tests were carried out in four English laboratories. It was unanimously agreed that the method drawn up in 1925 by Professor Poulsson for the biological assay of vitamin A was defective, in that no provision was made for an adequate supply of vitamin D to the animals during the period of the test; the method chosen by the investigators included the administration of excess of antirachitic vitamin during the latter part or the whole of the pre-observation period. The vitamin-A values of the seven oils as determined by the workers using the biological test came out in roughly the same order, but there was marked variation in the values obtained in different laboratories for the same oil. This variation was at least as great as that existing between results from the biological method and those for the same oils by the colorimetric method. It was not possible to attach numerical values to the results obtained by the biological method. Formulas for the basal diets used are given in an appendix. The conclusion reached is that the colorimetric method of Rosenheim and Drummond afforded information consistent with that derived from the biological tests; it is added, however, that before a conclusion is drawn as to the general validity of the colorimetric method, tests should be made with other substances containing vitamin A—e.g., butter and palm oil.

**Chemistry of Neosarsphenamine (Neosalvarsan).**—A. E. Jurist and W. G. Christiansen ("Journal of the American Chemical Society," January 1928) have made two modifications of Elvove's method of differential sulphur analysis, which gives a clearer insight into the composition of neosarsphenamine, the U.S.P. designation for neosalvarsan. This product is officially described in the U.S.P., X as a condensation product of 3,3'-diamino-4,4'-dihydroxyarsenobenzene with sodium formaldehyde sulphonylate. The authors find that combined formaldehyde sulphonylate reduces two atoms of iodine, whereas free sodium sulphonylate reduces four iodine atoms. Hence Elvove's assumption that free sulphonylate alone reduces iodine in neutral solution is incorrect. The method adopted consists of oxidising neosarsphenamine with an excess of iodine, and reducing the excess of iodine with sodium arsenite, acidifying, and precipitating sulphur as barium sulphate (instead of titrating iodine in excess with sodium thio-



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sulphate as in the Elvove method). The sulphur found as sulphate is usually larger than that calculated from the Elvove assay. The free sulphonylate and combined sulphonylate is derived from the following equations:—

$$(i) \ x + y = A \quad (ii) \ \frac{x}{0.8} + \frac{y}{1.6} = B$$

where  $x$  is free sulphonylate sulphur,  $y$  is combined sulphonylate sulphur oxidisable by iodine in neutral solution,  $A$  is the sulphur found by the arsenite method less free sulphate sulphur, and  $B$  is the titration in neutral solution (in c. c. of decinormal iodine solution) corrected for arsenic as given by Elvove. The several factors permitting the determination of the composition of neoarsphenamine from its arsenic content and differential sulphur analyses are as follows:—

Per cent. of sulphonylate sulphur  $\times 3.69$  = per cent. free sulphonylate.

Per cent. of combined sulphonylate as mono-substituted arsenical  $\div 6.87$  = per cent. of mono-substituted neoarsphenamine.

Per cent. of combined sulphonylate as di-substituted arsenical  $\div 11.31$  = per cent. of di-substituted neoarsphenamine.

Per cent. of arsenic — per cent. of arsenic as substituted arsenical  $\times 2.44$  = per cent. of free base.

Per cent. of free sulphate sulphur  $\times 4.44$  = sodium sulphate.

It is concluded that the so-called "sulpharsphenamine sulphur" is in fact nuclear sulphur, and that there are two types of combination between arsenamine base and sodium formaldehyde sulphonylate:—(1) A N-methylene type, reducing two atoms of iodine; and (2) a double salt of arsphenamine base and sulphonylate reacting with four iodine atoms. Analyses are given ("Journal of the American Pharmaceutical Association," December 1927), and the authors distinguish at least four types, viz.:—

Type A.—A mixture of mono-substituted and di-substituted sulphonylate, with varying amounts of non-sulphonylate sulphur, but containing no free arsphenamine base or sulphonylate.

Type B.—Contains much free sulphonylate, but no combined sulphonylate by the arsenite process. It is probable that the free sulphonylate is partially united to the arsphenamine nucleus, but the form of combination is so loose that the sulphur is oxidisable by iodine in neutral solution.

Type C.—Is a mixture of mono-substituted and di-substituted neoarsphenamine containing free sulphonylate as well as varying amounts of non-sulphonylate sulphur.

Type D.—Resembles C, but the non-sulphonylate sulphur is very low. Type D is further characterised by the absence of oxygenated substances and non-sulphur reducing compounds which are present in the other types.

All the specimens contain a small amount of sodium sulphate introduced as an impurity by the sulphonylate.

### BIOLOGICAL CHEMISTRY

**Vitamins A and C in Watercress.**—Katherine H. Coward and P. Eggleton report on an investigation ("Lancet," January 14, 1928) into the seasonal variation in the content of vitamins A and C in watercress. The source of supply was the same throughout the experiments. It was found to be necessary to ensure a sufficient supply of vitamin D for the animals used. The authors summarise their conclusions in the following sentences:—Watercress is a remarkably rich source of vitamin A, 0.1 gm. only of the green leaf being necessary to promote normal growth in a rat which has become steady in weight on a diet lacking this factor only. It contains also small amounts of vitamin D. Its growth-promoting properties are even stronger in the spring and summer than in the winter. It is a very rich source of vitamin C, 1 gm. daily being enough to protect guinea-pigs completely for a period of seventy days.

**The Dual Nature of Vitamin B** is the subject of a preliminary note by J. L. Rosedale ("Biochemical Journal," XXI, 6, 1267). From this it would appear that two factors are concerned in the rôle played by vitamin B, one being the anti-paralysis factor, and the other being independent of this and concerned with

digestive processes. The separation of the two factors is effected by extracting rice polishings with four times its weight of dilute acetic acid (1 per cent.) for eight hours at 40° C. After filtering and evaporation *in vacuo* to a 1 in 1 extract, this is treated with lead acetate until no further precipitation occurs. Lead is removed from the filtrate by precipitation with sulphuretted hydrogen, and evaporation *in vacuo* is carried out to the equivalent of one of extract from one of rice polishings. The filtrate cures polyneuritis, but the precipitate portion, while ensuring maintenance of health and growth, will not prevent polyneuritis. On the other hand, it relieves, by causing rapid evacuation of the bowel, the characteristic bowel "stoppage" in pigeons suffering from vitamin-B deficiency.

### Relative Content of Vitamins A and D in Cod-Liver Oil.

—Joan L. L. Clare and Katherine M. Soames have examined seven samples of cod-liver oil ("Lancet," 1928, p. 150) in order to ascertain whether any parallelism exists between the amounts of vitamins A and D respectively contained in any one oil. The methods employed were biological. Owing to variation in the rats, it was difficult to draw quantitative conclusions—e.g., the variation in ash content of bones of rats on the same ration was frequently as great as that existing between the averages calculated for rats in different groups. Nearly 200 rats were used in attempting to assay these oils for vitamin-D content, and it is probable that two or three times this number would be necessary to afford a reasonably accurate quantitative comparison. Graphs were, however, obtained by plotting average ash content of bone against daily dose of each oil, and a rough estimate was thus obtained of the dose which might be assumed to correspond to any definite value of ash content of bone. The authors conclude that, notwithstanding the drawback of the small degree of accuracy at present attainable by the biological methods in use, their results leave no doubt in their minds that the content of vitamin A in cod-liver oil bears no necessary relationship to that of vitamin D. They point out that vitamin A is less stable than vitamin D, and that the medicinal worth of cod-liver oil depends more on its antirachitic value than upon its vitamin-A content. If the amount of one of these vitamins in a particular oil bears no relationship to the other, the biological method of testing cod-liver oil laid down in the U.S.P., which aims at the assay of vitamin A only, is open to criticism.

### BOTANY

**The Photocapillary Reaction of Plant Sap** is the term used by F. Hercik ("Biochemical Journal," XXI, 6, 1253) to denote the changes in the surface tension of plant sap by exposure to light. The photocapillary reaction is observable in the sap expressed from young etiolated seedlings of *Pisum*, *Vicia*, *Pharbitis* and *Sinapis*, the sap of the last-named giving the most intense reaction and being used for experimental purposes. Etiolated sap is rich in capillary active substances, and has therefore a low surface tension. Upon illumination the amount of capillary active substances is more and more reduced with consequent increase in surface tension of the sap. The photocapillary reaction is quite independent of the light used and has no induction period, the only two decisive factors being the initial surface tension and the degree of dilution during experimentation. The sap particles are negatively charged, and it is suggested that this charge is lost during illumination. The growth-controlling action of light is more easily followed by means of the photocapillary reaction increasing the surface tension at the interfacial surfaces of the cell, which increased surface tension controls growth.

### ANALYTICAL CHEMISTRY

**Separation of Arsenic and Antimony.**—L. W. McKay ("Journal of the American Chemical Society," January 1928) gives a new method of separating arsenic and antimony which is capable of quantitative



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application. The process is based upon silver nitrate precipitating arsenic completely as silver arsenate from a hydrofluoric acid solution of arsenic and antimonious acids which has been made faintly but distinctly alkaline with ammonia. The precipitate is free from antimony if this is in the pentavalent state (this being best ensured by oxidation with potassium persulphate). The amount of arsenic is determined by applying the method of Volhard to the precipitate of silver arsenate dissolved in nitric acid. The antimony is titrated in the filtrate from the silver arsenate after removal of silver (by the minimum amount of hydrochloric acid). Concentrated sulphuric acid is added and the mixture evaporated with heating to strong fuming, followed by boiling gently in the presence of a piece of sulphur. The resultant antimonious acid is titrated with potassium bromate or potassium permanganate.

**Standard Method for Determination of Magnesium.**—A. W. Epperson ("Journal of the American Chemical Society," February 1928) demonstrates that the quantitative precipitation of magnesium as ammonium magnesium phosphate requires exactly defined conditions. Errors are introduced by (1) a very large excess of precipitant; (2) the presence of potassium chloride; and (3) the addition of the precipitant to an ammoniacal solution. These faults were not entirely remedied by re-precipitation, but conditions (1) and (3) are easily avoided. In the case of potassium chloride, a third precipitation usually gave the desired composition and a correct result. The standard procedure recommended for the determination of magnesium is as follows:

To the neutral or weakly acid solution of magnesium chloride, containing not more than 0.1 gm. of  $MgO$ , add 5 c.c. of concentrated hydrochloric acid and methyl red as indicator. Dilute the solution to 150 c.c. and add 10 c.c. (or a 5- to 10-fold excess) of the precipitant, preferably as a saturated solution of ammonium phosphate,  $(NH_4)_2HPO_4$ . Then add ammonia water (s.g. 0.90) slowly, while stirring, to neutralisation. Stir for about five minutes or until the precipitate of  $MgNH_4PO_4$  is well formed, and then add 5 c.c. excess of ammonia water, stirring for ten minutes. Allow to stand for at least four hours, preferably overnight, filter, and wash with water containing 3-5 per cent. by volume of ammonia water (s.g. 0.9). Dissolve the precipitate by washing on the filter with warm 1:9 hydrochloric acid (s.g. 1.02). Add methyl red indicator and about 1 c.c. of saturated solution of ammonium phosphate, and proceed as before, but in a volume of 100 to 150 c.c. In this precipitation, standing for four hours is sufficient. In igniting to magnesium pyrophosphate, the wet filter paper and precipitate should be placed in a platinum crucible and charred without flaming. It is then ignited at a low temperature (approximately  $500^\circ C.$ ) with the lid open enough to allow circulation of air until the residue is white, and finally heated at about  $1000^\circ C.$  to constant weight.

The procedure for the determination of phosphoric anhydride is similar, using a neutral or weakly acid solution containing not more than 0.1 gm. of  $P_2O_5$ .

**Test for Dextrin in Urine.**—P. J. Cammidge ("Lancet," 1927, II, 1388) has revised his original test for dextrin in urine as follows:—Twenty c.c. of the filtered urine is placed in a small flask, and 2 c.c. of hydrochloric acid (s.g. 1.16) added. The neck of the flask is closed with a small funnel and the contents are gently boiled for ten minutes. The excess of hydrochloric acid is then neutralised by adding 5 c.c. of a saturated solution of sodium carbonate, and the flask is cooled under running water. After making the contents faintly acid with acetic acid and shaking until frothing ceases, they are poured into a 50 c.c. graduated flask and the transference completed with two or three small washings of water. The contents of the graduate are now well shaken with 5 gm. of tribasic lead acetate, made up to 50 c.c. with water, allowed to stand for ten minutes, and filtered, repeating if necessary until a clear filtrate (A) is obtained. In another graduated flask 20 c.c. of the original urine is shaken with 5 gm. of tribasic lead acetate, made up to 50 c.c. with water, and filtered, yielding a second clear filtrate (B). Into each of two small flasks is now introduced 10 c.c. of a specially pre-

pared copper solution, and to one is added 5 c.c. of the filtrate "A" and to the other 5 c.c. of the filtrate "B." The necks of the flasks are closed with small funnels and the flasks are heated in a boiling saturated solution of sodium chloride for exactly five minutes. The flasks are then cooled in running water and 3 c.c. of sulphuric acid (30 per cent.) is added to each from a pipette, after which the contents are immediately titrated with freshly made  $N/100$  sodium thiosulphate solution, using three drops of 1 per cent. starch solution as an indicator. The figure obtained by titrating a control, consisting of 10 c.c. of the special copper solution and 3 c.c. of sulphuric acid (30 per cent.), with the same dilution of thiosulphate and starch as the indicator, is subtracted from each of the findings. The difference between the results thus obtained, multiplied by 5,000 and divided by 6, gives, approximately, the dextrin value of the urine in milligrams per cent. The special copper solution is prepared as follows:—I. Copper sulphate 5 gm., tartaric acid 7.5 gm., potassium carbonate 59 gm., distilled water 400 c.c. II. Potassium iodide 10 gm., potassium biniodate 0.7 gm., potassium oxalate 18.4 gm., distilled water 250 c.c. Mix and make up to 1,000 c.c. This method does not give reliable results in the presence of lævulose, lactose, or maltose, and should not be used when there is more than 0.1 per cent. of dextrose. It is then necessary to employ the author's modification of Jolles's process for estimating pentose. By either method an excretion of dextrin exceeding 150 mg. for twenty-four hours may be considered as abnormal.

### PURE CHEMISTRY AND PHYSICS

#### Penetration of Ultra-Violet Rays into Living Tissues.—

D. I. Macht, W. T. Anderson and F. K. Bell have conducted an investigation ("Journal of the American Medical Association," January 21, 1928) in order to ascertain the penetrative power of ultra-violet rays. The authors were surprised to find that some of the shorter ultra-violet rays were more penetrating than the longer ones. Again, in the region between 2,800 and 2,537 A.U. there apparently exists an absorption band and the transmission is not so good. Their summary of results (which were carefully checked) includes the following:—The penetration of ultra-violet rays through living animal tissue was studied in two ways: by means of the spectrograph, on the one hand, and by means of a thermopile, on the other hand. It was definitely established that penetration of ultra-violet rays through the living skin and other tissue is much greater than has hitherto been supposed. A marked difference was noted between the living skin and the dead skin. White human skin is more permeable to ultra-violet irradiations than negro skin on account of the presence of pigment in the latter.

#### Chemical Effects of High-Frequency Sound Waves.—

W. T. Richards and A. L. Loomis ("Journal of the American Chemical Society," December 1927) give a preliminary survey of the effects of compressional waves of high frequency. These sound waves of great intensity are produced by applying voltages (up to 50,000 volts.) to quartz crystal immersed in oil. A 2-kilowatt oscillator is capable of producing powerful oscillations with frequencies ranging from 100,000 to 500,000 per second. The intensity of radiation varies directly with the applied voltage. The sound waves travel up through the oil into any vessel suspended therein. Meta-stable systems are notably affected by "raying" with intense high frequency compressional waves. Gases are expelled from saturated solutions, and pure liquids boil about  $1^\circ$  below their normal boiling point. Evidence is given of the acceleration of chemical reactions, notably the hydrolysis of dimethyl sulphate and the iodine "clock" reaction. As a tentative explanation it is suggested that the sound waves have a disintegrating effect upon unstable molecules which is much more powerful than the heating effect. The increase in temperature is unmeasurable, owing to the thermometer or thermocouple being affected also by raying.



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## DENTISTRY

**Hydrogen-ion Concentration and Decay.**—H. G. Reeves ("British Dental Journal," Febr. 1928) describes some experiments undertaken to investigate the optimum concentration of hydrogen-ion concentration necessary to cause loss of calcium. The results show that only when the medium is strongly acid in reaction (P<sub>H</sub>. 1.2 to P<sub>H</sub>. 3.2) is the calcium content of the whole tooth affected. This remark also applies to the calcium content of the enamel. If, however, the teeth are carious, then a slightly acid medium (P<sub>H</sub>. = 6.3) effects a decalcification.

## ESSENTIAL OILS

**Essential Oils in Desert Plants.**—Adams and Billinghurst ("Journal of the American Chemical Society," 1927, 2895) have examined the following essential oils and recorded the following constants for:—

| Oil from                     | Percent-<br>age<br>yield | S. g.<br>at 18° | Rotation | Ref. in-<br>dex at<br>20° |
|------------------------------|--------------------------|-----------------|----------|---------------------------|
| Artemisia nidentata ..       | 0.92                     | 0.9052          | -8.54°   | 1.4689                    |
| Gutierrezia sarothrae ..     | 0.33                     | 0.8678          | +36.49°  | 1.4741                    |
| Juniperus utahensis ..       | —                        | 0.8879          | +56°36'  | 1.4715                    |
| Salvia lanceolata ..         | 0.32                     | 0.9254          | +2.35°   | 1.4771                    |
| Thamnosanna texanum ..       | 0.05                     | 0.9593          | +56.67°  | 1.4737                    |
| Tetradenia glabrata ..       | 0.12                     | 0.8522          | —        | 1.4756                    |
| Chrysanthemum graveolens ..  | —                        | 0.8746          | -1.62°   | 1.4842                    |
| C. viscidiflorens elegans .. | —                        | 0.8549          | +20.67°  | 1.4797                    |
| C. nauseosus gnaphalodes ..  | 0.49                     | 0.8651          | 1.5080   | —                         |
| C. nauseosus viridulens ..   | 0.17                     | 0.9045          | 1.5008   | —                         |
| C. nauseosus zololencus ..   | 0.18                     | 0.9767          | 1.5399   | —                         |
| C. nauseosus mohavensis ..   | 0.16                     | 0.8924          | 1.4971   | —                         |

### Constituents of Essential Oil of *Cymbopogon coloratus*.

—P. P. Pilley, B. J. Rao and J. L. Simonsen ("Journal of the Society of Chemical Industry," February 24, 1928) have examined the lemongrass oil from the flower heads of *Cymbopogon coloratus*, Stapf (*Andropogon Nardus* var. *coloratus*, Hook). The oil, which was pale yellow in colour, had the following constants:—S.g. (30°), 0.9183; refractive index (at 30°), +1.4819; acid value, 2.3; saponification value, 39.8; saponification value after acetylation, 111.2; aldehydes, nil. Fiji oil differs notably in assaying for aldehydes (yielding about 40 per cent. with sodium acid sulphite). The composition of the Indian oil is quite different:—*l*-camphene, 15 per cent.; *l*-limonene, 7 per cent.; camphor, possibly a trace; *l*-borneol, 8 per cent.; geraniol, 10 per cent.; sesquiterpenes, 35 per cent.; sesquiterpene alcohols, 8 per cent.; sesquiterpene oxide, 2.3 per cent.; unidentified, 14 per cent. A careful examination failed to reveal the presence of either citral or citronellal, the characteristic constituents of lemongrass oil.

**Lavender in the Valle di Roia.**—The following notes on the distribution of lavender in the Valle di Roia appear in the "Rivista Italiana delle Essenze e Profumi," December 15, 1927:—The lavender crop of this region, besides being the most important in the whole of Piedmont, is entirely derived from *Lavandula officinalis*; spike and other hybrids are unknown. The oil of lavender distilled in central and upper Roia is generally of better quality and has a higher ester content than that from other regions of Piedmont. The most important centres between Ventimiglia and Cuneo are: Airole on the frontier, Breil, Saorge and Ponta in French territory, S. Dalmazio di Tenda, Briga Marittima, and Tenda. There are twenty distilleries in this region, either in Italian or French territory, and the annual production of oil is 300 kilos. Analytical data of the oil distilled at Briga:—Specific gravity at 15°, 0.884; optical rotation, -5; refractive index, 1.4660; soluble in 3 volumes of alcohol (70 per cent.); ester value, 102. The commune of Briga Marittima and those of Tenda and S. Dalmazio di Tenda are particularly suited for the development of the industry as the plant grows wild in abundance.

**Some Italian Essential Oils.**—Romeo and Giuffrè ("Annali di Chimica Applicata," 1927, 83 and 87) have examined the Silician essential oils of *Mentha aqua-*

*tica*, *Mentha silvestris*, *Mentha pulegium* v. *tomentosa*, and *Calamintha nepeta* v. *canescens*. The oil from *Mentha aquatica* had the following characters:—Specific gravity at 15° = 0.9671; optical rotation +39°55'; refractive index 1.4883; acid value, 1.45; ester value, 63.4; esters as menthyl acetate, 22.4 per cent.; combined alcohols as menthol, 17.66; free alcohols, 28.5 per cent.; ketones, 0.77 per cent. Acetic and valeric acids were detected in the esters. The oil from *Mentha silvestris* had a specific gravity 0.9687; optical rotation, +20°15'; refractive index, 1.4841; acid value, 1.4; ester value, 81.2; esters, 28.7 per cent.; combined alcohols, 22.6 per cent.; free alcohols, 30.8 per cent. The oil from *Mentha pulegium* v. *tomentosa* had a specific gravity, 0.926; optical rotation +38°40'; refractive index, 1.4733; acid value, 1.55; ester value, 5.25; esters, 1.85 per cent.; free alcohols, 10.2 per cent.; combined alcohols, 1.46 per cent.; ketones, 11.7 per cent. The oil from *Calamintha nepeta* v. *canescens* had a specific gravity, 0.9218; optical rotation, +20°10'; refractive index, 1.4778; acid value, 1.1; ester value, 5.9; esters, 2.1 per cent.; free alcohols, 16.7 per cent.; combined alcohols, 1.64 per cent.; ketones, 18.3 per cent.

**Some Erythrean Essential Oils.**—Rovesti ("Annali di Chimica Applicata," 1927, 17, 553) reports on a number of essential oils distilled from plants grown in Erythrea. The seeds of *Carum copticum*, known locally as azmuth or camum, yield 3.65 per cent. of an orange-coloured oil having an odour of thymol and a burning taste. It has a specific gravity 0.9252 at 25°; rotation +1.47°; and refractive index 1.5085 at 23°. It contains 52 per cent. of thymol, pinene and *para*-cymene, but no carvacrol. The dried leaves, stems and flowers of *Lippia adensis* yield 0.753 per cent. of an orange-yellow oil of specific gravity 0.934 at 20°; rotation +55.3°; and refractive index 1.4958. It contains 72 per cent. of carvone and some limonene. *Andropogon connatus* yields 1.78 per cent. of a yellowish oil resembling gingergrass oil. Its specific gravity is 0.9355; optical rotation -54.5°; and refractive index 1.4951 at 23°. It contains 30.35 per cent. of dihydrocuminic alcohol, geraniol, phellandrene, an aldehyde and sesquiterpene compounds. *Ocimum menthaefolium* yields 0.327 per cent. of an oil of pleasant odour having a specific gravity 0.9496 at 25°; rotation +1.4°; and refractive index 1.5165 at 24°. It consists largely of anethol and methyl-chavicol. *Miriandra benghalensis* yields a yellow semi-solid oil having a specific gravity 0.9318 at 20°; rotation -6.2°; and refractive index 1.4687 at 21°. It contains about 70 per cent. of camphor, and a residual oil, resembling cheap oil of rosemary. This residual oil could well be employed in cheap soap manufacture.

### The Essential Oils of Two Species of *Baeckea*.

In a paper by A. R. Penfold, read before the Royal Society of New South Wales, the essential oils of *Baeckea brevifolia* (De Candolle) and *Baeckea linifolia*, var. *brevifolia* (Mueller) are discussed. *Baeckea brevifolia* is a small myrtaceous shrub, low-growing, and not exceeding 18 inches in height. It occurs in the Port Jackson area and the Blue Mountains of New South Wales. *Baeckea linifolia* is a tall erect shrub, having drooping branches and small white flowers. It is of fairly frequent occurrence on the coasts of New South Wales, extending into Victoria.

Material of *Baeckea brevifolia* for essential oil purposes was collected from the Blue Mountains, where it was found in a swampy depression close to Faulconbridge station. The plant is too small and infrequent to be of any commercial value. Altogether 212 lb. weight of leaves and terminal branchlets were collected in 1925 and 1927; in the latter year after a drought when the plant was very dry and gradually dying off. The oil yield was, on this account, much lower, being 1.0 per cent. as against 1.6 per cent. On the other hand, the eudesmol content was much higher. The oil is of special interest on account of the large amount of  $\beta$ -pinene and eudesmol (30.45 per cent.) present. The principal identified constituents are:  $\alpha$ - and  $\beta$ -pinene, cineol and eudes-



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mol, with small amounts of phenolic constituents. The essential oils were obtained by steam distillation. The first portion of the distillate was a very pale greenish yellow liquid with a terpenic odour, whilst the second portion came over as a brownish white solid. The contents of the 1925 essential oil determined were: yield 1.6 per cent.; specific gravity, 0.9110; optical rotation,  $-3.9$ ; refractive index, 1.4839; ester value, 3.2; ester value after acetylation, 75. For the 1927 sample the figures were: yield, 1.02 per cent.; specific gravity, 0.9257; refractive index, 1.4888; ester value, 5.4; ester value after acetylation, 109; too dark to read the optical rotation. The liquid portion of the 1925 distillate had a specific gravity, 0.8927; optical rotation,  $-13$ ; refractive index, 1.4762; ester value, 1; ester value after acetylation, 42.5. That from the 1927 specimen, specific gravity, 0.9077; optical rotation,  $-8.2$ ; refractive index, 1.4822; ester value, 5.4; ester value after acetylation, 78.7. The solid portion of the 1925 sample had a specific gravity, 0.9533; optical rotation,  $+18$ ; refractive index, 1.5010; ester value, 7.8; ester value after acetylation, 142. A quantity of crude oil (first fraction) on distillation yielded 80 per cent. boiling below  $75^{\circ}$  at 20 mm., 5 per cent. boiling between  $75^{\circ}$  at 20 mm. and  $120^{\circ}$  at 10 mm., and 13 per cent. at  $120-155^{\circ}$  at 10 mm. It was found on examination that the terpenes consisted almost wholly of  $\alpha$ - and  $\beta$ -pinene, the latter preponderating, while cineol was also found. One hundred grains of the second fraction (crude oil), which was a solid of m.p.  $52^{\circ}$ , when purified gave a white solid distilling at  $155-157^{\circ}$  at 10 mm., and melted at  $80.5-81^{\circ}$ . This had the properties of eudesmol, and there was also present a liquid phenol which was not identified. Material of *Baeckea linifolia* to the extent of 179 lb. of leaves and terminal branchlets was collected in New South Wales. The essential oils varied from pale yellow to brownish yellow, possessing a pleasing terpenic odour. The chief constituents so far identified are:  $\alpha$ - and  $\beta$ -pinene, cymene, cineol, (18 per cent.), sesquiterpene, and sesquiterpene alcohol, together with an unidentified phenolic constituent. By steam distillation, oils were obtained from three different sources, and the crude oils from all three consignments were mixed together. On examination it was found that the first fraction was rich in  $\beta$ -pinene. The fraction boiling below  $175^{\circ}$  was treated with 0.5 per cent. potassium permanganate solution, and the presence of cymene was definitely established.

### FIXED OILS AND FATS

**Ergosterol Content of Fatty Oils.**—I. M. Heilbron, E. D. Kamm and R. A. Morton ("Biochemical Journal," XXI, 6, 1280) publish a method of detecting and determining ergosterol in oils by spectrographic means. The method only discriminates between oils containing relatively little ergosterol and those containing reasonable amounts (so as to acquire antirachitic potency upon irradiation). The oils giving ergosterol bands are yeast fat, cottonseed, linseed, maize and arachis. Groundnut oil is interesting in showing large variations from sample to sample. Cottonseed oil appears to be a rich source of ergosterol. Yeast fat, which contains as much as 40 per cent. of ergosterol, gave the most pronounced absorption. Olive oil did not show any characteristic band, and reports of activation by irradiation must be regarded with reserve. Cod-liver oil does not exhibit the pro-vitamin bands (though it contains the precursor substance), only giving a pronounced inflection in the region of the ergosterol bands.

**Fatty Oil and Acids of Bixa Orellana, Linn.**—Work done on this subject by Loyd Ervin Harris is dealt with in the "Bulletin of the University of Wisconsin," 1927, 1471. In the introduction indication is given of the entire scope of the work, but only part of the actual thesis has been published. The research was undertaken with a view to discovering whether any acid (resembling chaulmoogric acid) exists in annatto seeds. No such acid was found, but definite investigations have been made on the fatty oil and the glucoside present. The average yield of oil was 2.7 per cent., and the presence

of palmitic, stearic, arachidic, oleic and linolic acids, with a trace of linolenic acid, was established. It was found that the unsaponifiable matter contained phyto-sterol; constants for Bixa resin and the essential oil were also determined. From 7 to 8 per cent. of the glucosidal matter was found, and on hydrolysis this yielded a brown amorphous pigment, related to bixin, and glucose. The constants of the fatty oil were: Saponification value, 186.7; iodine value, 98.2; acid value, 11.6; acetylation value, 5.6; density at  $25^{\circ}$ , 0.9808. The work on the fatty acids was supplemented by the preparation of the acetophenone esters of several fatty acids, but the author regards these as unsatisfactory owing to the closeness of the melting points of the acids and the derivatives.

**Gorli Oil.**—*Oncoba echinata*, Oliver, known to the natives of West Africa as "gorli" or "katoupo," is a small tree belonging to the Flacourtiaceae found in Sierra Leone, French Guinea and the Ivory Coast. The seeds measure 8 mm. by 4 mm., and weigh on an average 0.05 gram, and the oil extracted by ether from these seeds has been investigated by E. André and D. Youatte ("Bulletin des Sciences Pharmacologiques," February 1923). The latter exhibits the following characters:—

|                                       |                                     |
|---------------------------------------|-------------------------------------|
| Specific gravity (at $32^{\circ}$ C.) | ... 0.9286                          |
| Refraction index (at $31^{\circ}$ C.) | ... 1.4740                          |
| Optical rotation                      | ... $+56.10$                        |
| Melting point                         | ... $40^{\circ}$ to $42^{\circ}$ C. |
| Saponification number                 | ... 184.5                           |
| Iodine number (Hanus)                 | ... 98                              |

An analysis of the various fractions separated from the oil by crystallisation, distillation of the esters, and precipitation by means of magnesium acetate or barium acetate of alcoholic solutions of the acids showed that it consisted of approximately 80 per cent. chaulmoogric acid, 10 per cent. palmituric acid, and 10 per cent. gorlic acid. The authors succeeded in preparing trichaulmoogrin by heating a mixture of 6 grains of purified glycerin and 65 grams of chaulmoogric acid to  $160^{\circ}$  C. *in vacuo* (20 mm. mercury) for five to six hours on eight consecutive days. The resulting product was washed with warm alcohol to remove the last traces of chaulmoogric acid, and repeatedly crystallised from acetone. It was found to possess the following characters:—

|                                       |                     |
|---------------------------------------|---------------------|
| Melting point                         | ... $45^{\circ}$ C. |
| Refractive index (at $36^{\circ}$ C.) | ... 1.4764          |
| Specific gravity (at $46^{\circ}$ C.) | ... 0.9437          |
| Optical rotation                      | ... $+54.5$         |
| Saponification number                 | ... 190.6           |
| Iodine number                         | ... 87.3            |

Gorlic acid was separated as a colourless liquid, which assumes a yellowish colour on contact with the atmosphere; it possesses a characteristic odour and a pungent, burning taste. This acid exhibited the following characters:—

|                                       |              |
|---------------------------------------|--------------|
| Specific gravity (at $18^{\circ}$ C.) | ... 0.9364   |
| Refractive index (at $19^{\circ}$ C.) | ... 1.4783   |
| Optical rotation                      | ... $+50.18$ |
| Saturation index                      | ... 199.5    |
| Iodine number (Hanus)                 | ... 169.6    |

The theoretical saturation index for an acid of the composition  $C_{18}H_{30}O_2$  is 201, and the theoretical iodine number is 181.4. As a result of their investigations the authors point to the fact that, at present, gorli oil, on account of its high content of chaulmoogric acid—75 to 80 per cent.—is the best source from which the latter can be obtained, and advocate a study of the therapeutic properties of gorlic acid as compared with those of chaulmoogric and hydrocarpic acid.

### MATERIA MEDICA

**Liver Extract.**—The Medical Research Council gives the following method of preparing liver extract for use in the treatment of pernicious anaemia:—

To 100 kg. minced fresh ox liver add 132 litres of 80 per cent. alcohol and 109 c.c. of 50 per cent. (vol.)  $H_2SO_4$ . Stir frequently and filter after twelve to eighteen hours. Suspend the tissue again in 250 litres of 50 per cent. alcohol,



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stir frequently, and filter after twelve to eighteen hours. Evaporate the combined filtrates *in vacuo* to a volume of about 10 litres. Add 10 litres of absolute alcohol. A flocculent precipitate is formed, which settles. The supernatant fluid is removed and the residue is centrifuged and washed with 50 per cent. alcohol. The alcoholic liquid and washings are combined, evaporated *in vacuo* to as small a volume as possible, and then poured, with constant stirring, into ten volumes of absolute alcohol. The syrupy liquid is slowly dehydrated by the alcohol and assumes a toffee-like consistency. This material is pulled into long shreds to expose fresh surfaces to the dehydrating action of the alcohol. When the dehydrating action of the alcohol is exhausted it is replaced by fresh alcohol, and the material is broken up and eventually becomes brittle. It is then filtered off and dried (*in vacuo* over  $\text{H}_2\text{SO}_4$  or by other suitable means). It is then powdered rapidly and again dried as before. The material must be exposed to the air during these operations as little as possible, as it is very hygroscopic. The dry powder is transferred to tubes, each of which should contain an amount equivalent to 250 grams of the original fresh liver.

**New Mercury Diuretic: 440-B or Neptal.**—The diuretic action of mercury salts has received attention from pharmacologists recently, and research is being carried out to produce compounds of weak toxicity and maximum diuretic action. A large amount of work has been done in recent years, and novasurol and salyrgan have been studied in Germany and the English-speaking countries. Salyrgan, introduced in 1923, is a compound of mercury and sodium salicyl-allylamido-acetate in 10 per cent. solution. Neptal or 440-B introduced by Fourneau and Girard ("Union Pharmaceutique," December, 1927) resembles salyrgan in that it is an addition product of mercuric acetate and salicyl-allylamido-acetic acid. Solutions of 440-B are prepared not with sodium, but with ammonium chloride, and are in this condition more stable than those of salyrgan, being specially convenient for intramuscular injection. The product is obtained in the form of a solution in ampoules of 2 c.c. containing 0.092 gm. active product per c.c. Clinical research on neptal shows that a single injection of 1 to 1.5 c.c. of the solution induces diuresis in an hour, and the total amount of urine passed in twenty-four hours reaches four and even seven litres. An interesting peculiarity of neptal is the appearance, three or four days after the injection, of a secondary diuresis which completes the action of the first. New injections should be repeated at intervals of a week. It should not be administered to febrile patients as there is danger of a relapse.

**Kola Nut in French West Africa.**—Kola nut, while in Europe a product in little demand, is the object of an intensive internal traffic between the colonies bordering on the Gulf of Guinea and the Sudan, and the inhabitants of these regions (the Sahara zone excepted) appreciate particularly its excitant power on the muscular system. The kola tree ("Bulletin de l'Agence Générale des Colonies," 1927, 1183) can attain a height of 10-15 metres, but in the forest it reaches rarely these proportions, and remains often rather slender; it does not thrive except on fertile soil, and must be protected from the sun during the first years of growth. It commences to produce towards the fifth year, but the maximum yield is not given until after ten or even sometimes fifteen years. At this time it gives in two crops about 10 kilos of nuts of varying commercial value (on the market at Kankan, in January 1927, 12 fr. a kilo). Two species of kola trees are met with in French West Africa: *Cola vera*, which produces a fruit with two segments, and *Cola acuminata*, whose nuts divide into four, five and six segments, which are consumed locally. The kola tree exists in abundance in French Guinea, from the frontier of Sierra Leone to the boundary of Rio Nunez, and in the forest region of the Colony (around Kissidougou, Beyla, Checkédon, Macenta and N'Zérékové). On the Ivory Coast, kola is met with in important settlements in the greater part of the forest zone. Exportation of kola from French West Africa to abroad is limited, and is restricted to the quan-

tity of kola nuts sent to coloured troops stationed in France and in North Africa and that used in the pharmaceutical industry. In 1925 total exports from French West Africa were 160,064 kilos, of which 15,585 kilos were destined for France, 125,513 kilos to neighbouring Portuguese Colonies, and 15,192 kilos to British Colonies. This total was only 57,760 kilos in 1913. Besides these exports, there is the traffic with the colonies; in 1925, 142 tons (metric) was sent to French Guinea, 2,485 tons to the Ivory Coast, making a total of 2,527 tons, compared with 783 tons in 1922. The kola was introduced into Madagascar twenty-five years ago, and has acclimatised quite well at numerous points, particularly in the North West and on the island of Nossi-Bé.

### MEDICINE

**Sterilisation of Hypodermic Syringes.**—Delcourt-Bernard ("Union Pharmaceutique," March 15, 1928) recommends the following simple method of sterilising hypodermic syringes and needles without the use of heat:—The syringe, or needle, is washed, carefully dried, then placed in acetone, taking care to ensure that no air bubbles remain adherent. After a sojourn of one minute in the acetone the syringe is removed, the acetone evaporated\* by shaking, whereupon a mixture of vaseline, 5 grams; lanolin, 5 grams; and ether, 100 grams, is drawn up into the syringe, and expelled after one or two minutes; the syringe is now sterile and ready for use.

**Treatment of Primary Marasmus.**—R. McFadyean reports ("Lancet," January 28, 1928) on recent cases of primary marasmus, which he defines as passive wasting commencing within two weeks of birth and for which no cause other than a vitamin deficiency has been discovered. All the eight patients were fed on scalded undiluted cow's milk. The addition of vitamins A, B and C to the diet failed to produce benefit. The results of the cases suggest that the condition is curable by the administration of vitamin D, though this is no proof that the absence of vitamin D is the sole cause of the condition. In all cases vitamin D was administered in the form of ostelin.

**Irradiated Ergosterol in Rickets.**—A. Aidin reports ("Lancet," February 4, 1928) on the administration of irradiated ergosterol in rickets. Radiostol was given in each of five cases (ages from eighteen months to three years nine months), in doses commencing with mĳj. and increasing to mx. thrice daily. No cod-liver oil was given. The patients were treated indoors in a hospital ward, and none showed any signs of intolerance. All the cases improved. Patients with marked deformities should not be given specific antirachitic treatment until the deformities are cured. The author expresses the view that actinotherapy in the treatment of rickets is rapidly becoming a thing of the past.

**Chronic Vinegar Poisoning.**—D. A. Urquhart contributes to the "British Medical Journal" (1927, II, 1226) some notes on a case of fatal poisoning by vinegar (*C. & D.*, 1927, II, 193). The patient, a woman aged sixty, weighed only 38 lb. on admission to the infirmary; for thirty years, it appeared it had been her habit to drink about a pint and a half of vinegar daily. After quoting notes on the *post-mortem* examination, the author remarks that the state of acidosis was evidently prevented by the formation of acetic salts, which were in turn broken down, but her digestive organs had arrived at complete abrogation of function: she was, in fact, as nearly as possible pickled alive.

**Treatment of Lupus Vulgaris.**—J. Beatty summarises ("British Medical Journal," January 14, 1928) the methods of treatment of lupus vulgaris at the Royal Infirmary, Cardiff, during the past four years. The methods of treatment used have been pyrogallol ointment, acid nitrate of mercury (as recommended by Adamson), salicylic acid and



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creosote plaster, X-rays, ultra-violet rays, and alkaline phenol followed by a hypertonic dressing. The application found most generally useful is alkaline phenol. With the co-operation of Mr. J. T. Williams, pharmacist to the Infirmary, the following formulas have been worked out:—In a 4-c.c. wide-mouthed sample bottle stoppered by a rubber cap are placed 2.5 c.c. of a solution of caustic potash (1 part to 2 of water) in which is suspended precipitated chalk (1 part), and 1.5 c.c. of acidum carbolicum liquefactum. The preparation is made in small amounts because oxidation takes place with resulting brown discoloration after a few days' exposure to the air over the fluid. When the vial is filled this does not occur to any extent, and there is enough of the preparation to treat several patches. It is better, however, to keep the caustic potash preparation separate from the phenol and mix shortly before use.

**Peptoned Agar Serum.**—As the result of experience of difficulties in the peptone treatment of asthma, A. G. Auld ("British Medical Journal," February 4, 1928) recommends the following method:—Incubate the agar serum for about two hours at 37° C. Then a 30 per cent. solution of peptone is taken, and 4 c.c. of it is mixed with 2½ minims of phenol (measured) for each ounce of the peptoned agar serum. No precipitate will be found in this peptone solution. It is then poured into the agar serum, and mixed up with it, when the colloidal solution remains perfectly clear. It is unnecessary to incubate further. It is best to use the patient's own serum, as it contains some appropriate antibody, more or less. The 30 per cent. peptone solution may be made by heating peptone in saline at about 90° C. for a considerable time, shaking up, adding 0.5 per cent. of phenol, allowing to stand for a few days and filtering. When a case has been thoroughly examined, the diet, etc., arranged, and any endocrine defect attended to, first try intravenous injection of peptone (5 per cent.) up to 2½ or 3 c.c.; if after a time, say four to five weeks, but little improvement is found, carefully and slowly introduce into the vein peptoned agar serum (½ c.c. up to 3½ or 4 c.c.) when, in many cases, excellent results will be obtained.

**Chronic Lead Poisoning from Snuff.**—J. Uttal ("Journal of the American Medical Association," January 28, 1928) reports three hospital cases of chronic lead poisoning from the use of snuff. The patients were aged respectively fifty-five, fifty-eight and forty. The author makes the general observation that with a low calcium diet, ammonium chloride and sodium acid phosphate, and more recently parathyroid extract (Collip), it is possible to mobilise stored lead quickly and cause its excretion. The treatment, however, was different in each of the cases reported, one patient being "under no specific therapy"; all had improved in health, and two had been discharged. Snuff may be contaminated with lead from two sources:—(1) Snuff wrapped in tinfoil containing a high proportion of lead may, if it becomes moist, receive minute amounts of lead in solution. The respiratory tract is the most rapid source of the dissemination of lead, since it leads direct to the general circulation. Moist snuff examined by Stadler (1912) contained 1.75-1.9 per cent. of lead. (2) Lead chromate is used as a colouring agent in the manufacture of snuff. The brand of snuff suspected of being responsible for the three cases reported was found to contain 3.24 per cent. of lead. A green colouring matter containing about 0.2 per cent. of chromium oxide and 0.59 per cent. of lead oxide (PbO) is also in use.

**Administration of Liver in Pernicious Anæmia.**—H. F. Brewer, A. Q. Wells and F. R. Fraser report ("British Medical Journal," February 4, 1928) on nineteen cases of pernicious anæmia treated by the administration of liver. In ten cases there were intervening factors which prevented a valuation of the treatment. In the other nine cases ½ lb. of liver or the equivalent in extract was given daily. The results, taken in conjunction with those of 125 cases previously reported by Minot and Murphy, show remarkable uniformity in improvement following the treatment, only

two of the nine patients failing to respond satisfactorily. If liver is given in the first attack, or in the stage of relapse, the reticulated red cells increase in a few days with striking regularity, and this increase is followed by a steady rise in the total red cell count and in the hæmoglobin. This characteristic response does not occur in patients with secondary anæmia or leukæmia. A non-protein, iron-free extract of liver has the same action as whole liver. It is too early to form any conclusions as to the value of this treatment in maintaining the improved state or preventing relapses. It is important to pay attention to the general condition of the patient, to treat septic conditions and to administer hydrochloric acid.

**Treatment of Lichen Planus.**—A. Whitfield ("Lancet," February 18, 1928) calls attention to the efficacy of mercurous iodide (gr. ½, t.d.s.) in lichen planus. As soon as the more acute phase of eruption and irritation subsides, liquor arsenicalis (mv., t.d.s.) may be given; if the patient cannot tolerate arsenic *per os*, injections of acetylarsan (0.7 gm.) may be given twice weekly up to fifteen times. The withdrawal of 6-8 c.c. of cerebrospinal fluid gives relief from intense itching with loss of sleep, the patient being kept in bed for forty-eight hours after the lumbar puncture. Where the typical plane papule is present alone, lotions act better than ointments—e.g., liquor picis carbonis, 2 per cent., in lotio calamine, or:—Phenol. cryst., camphor., aa. 3ss.; hydrargyri perchlor., gr. j.; pulv. tragacanth, gr. xv.; sp. vini meth. industrialis, 3iv.; glycerini, 5j.; aq. dest. ad 5vij. In some cases and at some stages the horny follicular papule is the chief lesion, and in such the author finds the following ointment useful:—Acid. salicyl., gr. xxv.; sapo. mollis, 5ij.; ol. olivæ, 5j.; adip. lanæ ad 5j. This should be thoroughly rubbed in once a day and washed off before applying afresh. Verrucose patches may be rubbed with the following ointment:—Phenol. cryst., camphor., aa. gr. xxv.; ung. hydrargyri, 5ij.; adip. lanæ ad 5j. An area larger than the patch is then covered in with zinc oxide strapping, which adheres only at the edges beyond the greased area, but keeps the whole area, as it were, locked up in a waterproof dressing. It should be renewed daily, and should it excite some inflammatory reaction it should be stopped for a time and the part soothed down.

**Irradiated Ergosterol as a Dressing for Wounds.**—C. J. Bond ("British Medical Journal," March 3, 1928) gives details of the use of irradiated ergosterol as a dressing for varicose ulcers and for infected and granulating wounds. Lately radiostol in oil, diluted with liquid paraffin and soaked in gauze, has been found to be a convenient form of dressing. In two cases in which healing had been delayed by *B. pyocyaneus* infection it was noticed that the infective process was arrested in the part of the wound in contact with the irradiated ergosterol dressing, although it was still present in the area dressed by liquid paraffin, used as a control. Irradiated ergosterol so applied to wounds not only reduces infection and promotes healthy granulations, it also stimulates the ingrowth of epithelial cells from the margin, and so favours the healing process. Experiments have also been carried out to test the bactericidal effect of irradiated as compared with non-irradiated ergosterol. Colonies of *Staphylococcus aureus* were found to be more numerous on non-irradiated than on irradiated films of ergosterol. These experiments, the author adds, require to be repeated with other types of organisms, aerobic and anaerobic. The fact that irradiated ergosterol, after long exposure to atmospheric oxygen (especially in a warm temperature), is found to lose its antirachitic value, and also its capacity for liberating oxygen, and no longer oxidises potassium iodide, as shown by the starch test, is important. A discussion of various phenomena found in the author's experiments is concluded with the following statement:—We know that irradiation will convert ergosterol and other unsaturated sterols into a substance having antirachitic qualities—that is, vitamin D. We have now shown that irradiation will also produce from the ergosterol a fat-



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soluble substance containing oxygen, some portion of which can be readily liberated. We also know that ozonisation (and possibly other methods) will convert ergosterol into an oxidising substance, but we do not yet know whether ozonisation will produce an antirachitic substance. Neither do we yet know whether the vitamin D and the oxidising substance are one and the same thing.

### OPTICS

**Stereoscopes, Accommodation and Convergence.**—E. E. Maddox ("British Journal of Ophthalmology," June 1927) states that if the pictures of a stereogram placed in the focal plane are closer together than the interval between the optical centres of the lenses, they cause forced esotropia when drawn nearer, this esotropia gradually lessens, and becomes *nil* at a distance from the lenses equal to the interval between the pictures multiplied by a constant. Nearer still exotropia enters, increasing with every approach. In every fixed stereoscope this constant can be found by dividing the focal length of the lenses by their optical separation.

**Stereoscopic Vision in X-ray Work.**—H. Humphris ("Lancet," March 3, 1928) describes apparatus with which he considers the solution of the problem of satisfactory stereofluoroscopy has been attained. The observer views the screen through a mechanical device—with a diaphragm rotating before the eyes in synchronisation with the two impulses from the x-ray tubes—the result is that one eye sees the image produced by one tube and the other the image from the other tube, the physiological action of the brain combines these two pictures into one plastic impression. The movements seen on the screen appear to be continuous, as each eye is supplied with 50 pictures per second. A part of the mechanical construction consists of a device whereby the angle of the x-rays to the body is rendered identical with that of the angle of vision, this being so whether the observer approaches the patient or recedes from him.

**Antiseptics in Ophthalmic Surgery.**—Sir Arnold Lawson ("British Medical Journal," Dec. 17, 1927), in the course of a paper on this subject, states that a solution of 1 in 1,000 of flavine can be freely applied to the eye at the time of applying the sutures, and thereafter it can be safely dropped into the eye twice daily in a strength of 1 in 4,000 without causing either disturbance or delay in healing. As regards contamination of the lash area, after every operation he covers the affected eye with a gamgee pad well sprinkled with a 1 in 4,000 solution of flavine, and it is changed twice daily. If trouble does occur, something must be used as a substitute for or in addition to flavine, and he recommends a 2 per cent. solution of protargol employed twice daily as drops. If it is necessary to operate on an acute glaucoma when there is intense congestion and obvious sepsis, he considers the best antiseptic is hydrogen peroxide, with which the eye is flooded immediately before the knife section is made. Peroxide is better than flavine because the latter is strictly antiseptic and not of much value when sepsis is already present.

**Illumination and Visual Acuity.**—H. Banister, H. Hartridge and R. J. Lythgoe ("British Journal of Ophthalmology," July 1927) have conducted an investigation regarding the effect of illumination (a) where the test objects subtended only a small angle and were viewed for a prolonged period, and (b) where the test objects subtended a considerable angle but were viewed only for a fraction of a second. By these methods they investigated the effect of intensity of illumination on visual acuity, (a) for normal sighted observers, (b) for normal sighted observers given defective vision by means of glasses, and (c) for observers with abnormal vision. In each case there was found a clearly marked increase in visual acuity as the illumination was increased up to about 100 foot-candles. The range 1-100 foot-candles covers that ordinarily met with in artificial illumination. An increase in the intensity from 1 to 100 causes only a twofold increase in visual acuity. Artificial illumination of 2-4 foot-candles is most probably fully adequate

for a variety of purposes. For very fine work where the maximum visual acuity is required an intensity of 100 foot-candles should be found adequate.

**Recording Muscular Imbalance.**—At a recent meeting of the Optical Society ("Transactions of the Optical Society," 1927-28, No. 1) O. Aves, F.B.O.A., demonstrated his instrument called the Devigraph, a modification of the Myophoriograph, an instrument invented by Esdaile. Its main purpose is to provide the refractionist with the means of obtaining graphic records of muscular imbalance in the para-central field of vision. Research work in problems of muscular imbalance has shown that, quite apart from those cases where there is paralysis of the external ocular muscles, tonic deviations may vary considerably when the eyes are orientated towards different zones of the field of vision. Hitherto investigations of muscular imbalance, of the tonic variety, have been usually carried out in the principal position, i.e., the fixation object being situated centrally in front of the face, both in the horizontal and vertical medians. A general survey of different workers' observations indicates that varying amounts of deviation have been attributed mainly to the well-known connection between convergence and accommodation, and where anomalies have appeared scant attention seems to have been paid to their explanation. The inventor considers that such investigation has been neglected owing to the many mechanical difficulties when endeavouring to measure deviations in any other than the central position. The Devigraph endeavours to remove these difficulties by providing a quick and accurate routine technique so that a large amount of clinical material may be available for the further solution of problems affecting binocular vision.

### PHARMACOLOGY

**An Indian Dysentery Remedy.**—T. A. Henry and H. C. Brown comment ("Lancet," January 14, 1928) on a recent study of the pharmacological and therapeutic actions of *Holarrhena antidysenterica* carried out by Caius and Mhaskar, summarised in the "Lancet" of January 7 (p. 38). Caius and Mhaskar found that a 1:5 decoction of the powdered seeds had no antiseptic value when tested by its effect on the growth of colon and typhoid bacilli. It produced an increase in the tone of the plain muscle of the gut and uterus of the guinea-pig and rabbit, and the powdered seeds in doses of gr. 15-60 a day led to a definite clinical improvement in 57 per cent. of the cases of amœbic dysentery, in 22 per cent. of the cases of non-amœbic dysentery, and in 61 per cent. of the cases of non-dysenteric diarrhoea investigated. Using the bark, fifty-one out of sixty-seven cases of amœbic dysentery, thirty-seven out of fifty-five cases of non-amœbic, and nine out of twenty cases of non-dysenteric diarrhoea were definitely improved. From these figures, together with the fact that the smallest therapeutic dose of conessine is quite out of proportion to the amount of combined alkaloid present in optimum doses of either the seed or the bark, the authors conclude that the bark is the best part of the plant for administration. They recommend gr. 60-120 daily, in powder, divided into three or four portions. Henry and Brown add that in two Calcutta cases of amœbic dysentery an extract of the bark has been found equally satisfactory and less nauseous: the amœbic infection appeared to be eradicated, and the cure was apparently rapid and complete.

**Fixation of Antiseptics by Dressings and Tissues.**—Experiments have been carried out by J. G. Graham ("British Medical Journal," February 4, 1928) to measure the absorptive capacity of gauze for acriflavine, phenol and mercuric chloride. The capacity of the tissues to fix antiseptics was tried with minced ox muscle, after leaving it for twenty-four hours in running water. The conclusions arrived at are:—(1) In the treatment of wounds with an antiseptic such as acriflavine allowance must be made for the considerable affinity of cotton dressings for this class of antiseptic. (On the other hand, phenol and mercuric chloride have practically no affinity for cotton.) (2) The concentration of the acriflavine solution should



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be such that after the gauze has satisfied its affinity for the antiseptic there is still a sufficient concentration left free to act in the tissues. It follows, therefore, that the swab must be applied dripping wet and not wrung out. Quantitative experiments have been carried out by soaking gauze swabs in approximately three times the amount of solution which can be taken up, and estimating the concentration of the antiseptic in the fluid expressed. It has been found that after three-minutes' soaking in 1 in 1,000 acriflavine solution the fluid expressible from the gauze contains 1 in 1,600 of the antiseptic, and even after twenty-four hours' soaking the fluid expressed contains 1 in 1,800. When a 1 in 5,000 solution is employed under similar conditions the fluid expressed from the gauze after three-minutes' soaking contains 1 in 9,000 of the dye, and after twenty-four hours' soaking the fluid expressed contains 1 in 20,000. The above concentrations employed according to this procedure have been shown to give a dressing which is very satisfactory for treating septic infections without inhibiting healing. (3) When a lesser proportion of the solution is used, or when swabs are soaked successively in the fluid, there is great danger in the case of the 1 in 5,000 concentration that the amount of antiseptic available may be reduced to an ineffective level. (4) Experiments on the fixation of antiseptics by tissues have shown that minced and washed muscle, while it absorbs mercuric chloride very actively, has a definite though much less marked affinity for phenol and acriflavine, the last being absorbed to a slightly less extent than by gauze.

**Experiments with Organic Arsenical Compounds.**—An elaborate study of anti-syphilitic arsenical compounds in order to ascertain whether they have a directly destructive action *in vivo* on some of the bacteria (as opposed to the protozoa and spirochaetes) in the body has been carried out by L. Colebrook (Medical Research Council: Special Report Series, No. 119). Each of the author's twenty tables is accompanied by a discussion of the results obtained in the corresponding series of experiments. The following are the principal passages in the summary:—(1) 606, novarsenobenzene and several compounds nearly related to these exhibit a high degree of destructive affinity for the group of hæmolytic streptococci, and for pneumococci. They have less effect upon streptococci of the "viridans" group and staphylococci; and only a very feeble action upon enterococci, certain diphtheroid and coliform bacilli. (2) The serum of patients into whom these compounds have been injected is found to have acquired considerable power to kill hæmolytic streptococci. The streptocidal power thus acquired by the serum is at its highest immediately after an intravenous injection of novarsenobenzene, and falls away, somewhat rapidly at first and then more slowly, during the following twenty-four to forty-eight hours. By intramuscular or subcutaneous injection of metarsenobillon, kharsulphan or sulfarsenol, repeated at suitable intervals, it has been maintained in several patients for three or four days—and in one case, using metarsenobillon, for four weeks. (3) The bactericidal effects obtained with simple solutions of these drugs—and also with the serums of patients under treatment by them—are remarkable for their extremely slow onset. (4) All these arsenical compounds, though in varying degree, have a toxic and destructive effect upon human leucocytes—in particular upon the polynuclear cells. So far as can be ascertained the small lymphocytes are not affected. (5) The leucocytes of several patients suffering from very severe streptococcal infections were more sensitive than those of normal people to the toxic action of these compounds. (6) The addition of these arsenicals to infected normal human blood (defibrinated) *in vitro* affects the total bactericidal and growth-inhibiting power of that blood in a manner which can be readily interpreted by considering the separate effects of the drugs upon the microbes and the leucocytes. With the compounds of relatively low toxicity for leucocytes (metarsenobillon, kharsulphan, etc.) it proved an easy matter so to adjust the dose as to secure an increased antibacterial effect: with the more toxic ones

(e.g., novarsenobenzene) it was not so easy. (7) The effect of treatment by these arsenicals upon the total bactericidal and growth-inhibiting power of the whole blood (defibrinated) was determined in three patients. It was found to be considerably increased in each case, the improvement lasting from one to three days. The assistance of Sir Almroth Wright, Drs. E. W. Todd, Ronald Hare, R. M. Fry and Roche Lynch, and that of May & Baker, Ltd. (who provided arsenical compounds), is acknowledged.

### PHOTOGRAPHY

**Stains with Chromium Intensifier.**—W. F. A. Ermen ("British Journal of Photography," Feb. 10, 1928) states that he has found that at times the chromium stain is extremely difficult to wash out of the bleached negatives, and that even when at last the stained patch looks decolorised, the use of amidol for re-developing is quite likely to bring up a pink or red stain where the obstinate patch had been. This liability of amidol to cause red stain is even more marked in the re-developing of bromide prints bleached in the Carbro process. In fact, it appears almost impossible to avoid a certain amount of general staining. He finds that a plain metol developer entirely overcomes this difficulty. Metol will re-develop either chromium-bleached negatives or bromide prints, even although quite yellow with bichromate stain, without any trace of colouring. If much bichromate is still present, the first action of the developer is to discharge the yellow colour, after which development proceeds quite normally, and in every case the resultant image is a pure black, with the high-lights absolutely clean.

### VETERINARY MEDICINE

**Mange of the Dog.**—H. Taylor ("Veterinary Record," Jan. 7, 1928) suggests the use of the following preparation in the treatment of follicular or demodectic mange of the dog:—Sulphur, 3 parts; carbon tetrachloride, 27 parts; carbon disulphide, 60 parts. Dress once every other day. Rub in with a lump of wool in the open air. The sulphur is soluble in the carbon disulphide, and the carbon tetrachloride is only to reduce inflammability.

**Paradichlorobenzene as an Anthelmintic.**—G. Dikmans ("Journal of Agricultural Research," October 1927) considers that administered to dogs in doses of 0.1, 0.3, 0.5 and 1 gm. per kilo of body weight in bland oils and in crystal form, followed by a bland oil in some instances and a purgative oil in others, *p*-dichlorobenzene is of some value against intestinal worms, but the results were not sufficiently uniform to permit the classifying of it as an anthelmintic. The drug was observed to render unfit for human consumption the meat of animals to which it was administered. The results apparently confirm the hypotheses advanced by other investigators concerning the relationship of the chlorine content and the solubility of halogen compounds to their anthelmintic efficacy, so that *p*-dichlorobenzene theoretically should be inferior to carbon tetrachloride and tetrachlorethylene.

**Toxicity of Tartar Emetic.**—H. E. Hornby ("Veterinary Record," Jan. 21, 1928) states that the African trypanosomiasis of cattle are best treated by intravenous injections of tartar emetic, and so far no synthetic organic antimony compound that has been fully tested has given results sufficiently superior to tartar emetic to justify the cost of its use in routine treatment. The intravenous administration of even therapeutic doses of tartar emetic to cattle is by no means without grave danger. The most serious toxic action of the drug is on the liver, where it is liable to provoke central necrosis closely resembling acute yellow atrophy of human pathology. Great differences exist between individual animals concerning their susceptibility to this form of poisoning, cachectic animals being very much more susceptible than lusty ones. Research is needed to reveal on what this difference depends, and to show how animals with livers of low resistance can be treated to permit efficient antimony therapy.



## Sporting News

THE South-West London Chemists' Association Rifle Club has just finished a very successful season. Shooting as the C Team of the Balham Rifle Club in the City of London Rifle League (Division VI), the team has secured second place. They have won thirteen matches, drawn two, lost three, and have scored 10,215 points, the highest aggregate obtained by any of the ten teams in the division. For the second year in succession Mr. A. M. Garden, chemist and druggist, Mitcham, with a score of 1,711, has won the aggregate medal presented by the City of London League to the member of the team scoring the highest aggregate points in the eighteen matches. Mr. Garden, with an average score of 95.6, has also won the N.R.A. Donegal badge given by the Balham Rifle Club to the member of C Team having the best average for the best fifteen matches during the tournament.

THE annual meeting of the Manchester and District Pharmacists' Golfing Society was held in the Houldsworth Hall, Manchester, on March 12. The president (Mr. A. J. Pidd) occupied the chair. The secretary (Mr. P. W. Stuart) said that last season had been most successful, there being a balance in hand of £9. The president and the secretary were unanimously re-elected and thanked for their services. Councillor R. G. Edwards was elected captain for the coming season, and a hearty vote of thanks was given to the retiring captain (Mr. J. H. Blyton). The offer of a trophy (with a memento for the winner each year) by Thomas Kerfoot & Co., Ltd., Bardsley Vale, was accepted with acclamation. This will be competed for at Ashton in June. The fixtures for the season were then arranged. The competition at Withington on April 25 will be the qualifying round for the Gibbs' trophy. Additional members will be welcomed, and all pharmacist golfers in the area of larger Manchester are invited to communicate with the secretary, Mr. P. W. Stuart, 398 Ashton Old Road, Manchester.

## Festivities

### Lancaster Whist Drive

THE Lancaster, Kendal and District Branch of the Pharmaceutical Society held an enjoyable musical evening and whist drive at the Empire Café on March 14. The whist drive was under the direction of Mr. W. A. Smith, and the successful players were:—*Ladies*: Miss Cathcart, Mrs. Oldham and Mrs. Angus. *Gentlemen*: Mr. Eastwood and Miss Dunderdale (playing as gentleman). Mr. A. H. Robertson presided over the concert programme, which was contributed to by Dr. J. H. R. Dixon, Miss Winifred Porter, Mr. Wilde and Mr. L. Pearson. Mrs. Angus presented the whist prizes. A solid silver tankard, suitably inscribed, was presented to Mr. H. Troughton, who had retired after forty-eight years in pharmacy. Mr. Troughton was unable to be present, through indisposition, but his daughter, Miss Winifred Troughton, accepted the gift on his behalf.

### Lombard Social Club

MEMBERS of the Lombard Social Club (Whiffen & Sons, Ltd., manufacturing chemists, London, S.W.) held their annual dinner in the clubroom, Lombard Road, on March 23. The president of the club, Mr. W. George Whiffen, occupied the chair, and welcomed the guests, who included Mr. T. Brogan, late Mayor of the borough. The toast of "The President" was proposed by the secretary of the club, Mr. A. E. Bagwell. As a souvenir of the occasion the members presented Mr. Whiffen with a chairman's mallet made from the wood of the old mulberry tree which stood in the garden at Battersea for 300 years, and was blown down by the recent gale. Mr. Whiffen, in accepting the gift, expressed his thanks and appreciation of the sentiments evident. Mr. Noel Whiffen, the Club chairman, proposed "The Visitors." Mr. Brogan replied, and a musical programme followed. The other directors of the firm present were Mr. G. Goodman Whiffen and Mr. Stanley White Whiffen; representatives from the laboratory and office staffs from Fulham also attended the dinner.

## Easter Holidays

WE have ascertained that the following wholesale houses will be closed from Thursday evening, April 5, until Tuesday morning, April 10, except where otherwise indicated:—

Allen & Hanburys, Ltd., Bethnal Green, E.2 (small urgent orders can be executed at 7 Vere Street, W.1.)  
 Allen, Stafford & Sons, Ltd., Cowper Street, E.C.2  
 Ayrton, Saunders & Co., Ltd., 34 Hanover Street, Liverpool  
 Baiss Brothers & Co., Ltd., Grange Works, Bermondsey, S.E.1  
 Bell, John, Hills & Lucas, Ltd., Oxford Works, Tower Bridge Road, S.E.1  
 Berton, Arthur, Ltd., Old Street, E.C.2  
 British Drug Houses, Ltd., The, 16-30 Graham Street, City Road, N.1  
 Britton, Malcolm & Waymark, Ltd., 38 Southwark Bridge Road, S.E.  
 Bourjois, A., et Cie, Ltd., 4 Water Lane, E.C.  
 Burge, Warren & Ridgley, Ltd., 91-92 Great Saffron Hill, E.C.1  
 Burgoyne, Burbidges & Co., Ltd., East Ham, E.  
 Burroughs, Wellcome & Co., Snow Hill Buildings, E.C.1  
 Butler & Crispe, 80-82 Clerkenwell Road, E.C.  
 Christy, Thomas, & Co., 4, 10 and 12 Old Swan Lane, E.C.4 (closing 4 p.m. on April 10)  
 Curling, George, Wyman & Co., 56-59 Bunhill Row, E.C.1  
 Davenport, J. T., Ltd., 117 Union Street, S.E.1 (closed April 10)  
 Edwards, W., & Son, Nile Street, City Road, N.1  
 Ford, T. H., Ltd., 6 Well Street, Jewin Street, E.C.1  
 Harker, C. R., Stagg & Morgan, Ltd., Mile End, E.1  
 Hewlett, C. J., & Son, Ltd., 35-42 Charlotte Street, E.C.2 (open April 7)  
 Howards & Sons, Ltd., Uphall Works, Ilford, Essex  
 Lofthouse & Saltmer, Ltd., Church Lane, Hull  
 Macfarlan, J. F., & Co., 32 Bethnal Green Road, E.  
 May, Roberts & Co., Ltd., 7-13 Clerkenwell Road, E.C.1  
 Maw, S., Son & Sons, Ltd., 7-12 Aldersgate Street, E.C.1  
 Meggeson & Co., Ltd., New Church Street, S.E.16  
 Morson, Thomas, & Son, Ltd., 47 Gray's Inn Road, W.C.1  
 Napp, H. R., Ltd., 384 Clement's Inn, Kingsway, W.C.2 (urgent orders can be executed by Rouse & Co., Ltd., 12 Wigmore Street, W.1, and Mr. W. R. Brooke, 19 Gloucester Road, S.W.7)  
 Newbery, Francis, & Sons, Ltd., 27 and 28 Charterhouse Square, E.C.1  
 Oldfield, Pattinson & Co., New Bridge Street, Manchester  
 Oppenheimer, Son & Co., Ltd., 179 Queen Victoria Street, E.C.4  
 Parke, Davis & Co., 50-54 Beak Street, W.1  
 Potter & Clarke, Ltd., 60-64 Artillery Lane, E.1  
 Reuter, R. J., Company, Ltd., 69 Carter Lane, E.C.4  
 Smith, T. & H., Ltd., 25 Christopher Street, E.C.2  
 Sparks, White & Co., Ltd., Tenter Street, E.1  
 Stevenson, H. E., & Co., 122 Great Suffolk Street, S.E.1  
 Stevenson & Howell, Ltd., 95A Southwark Street, S.E.1  
 Toogood, William, Ltd., 77 Southwark Street, S.E.1  
 Tyer, Thomas, & Co., Ltd., Sterling Chemical Works, Stratford, E.15  
 Wright, Layman & Umney, Ltd., 44-50 Southwark Street, S.E.1  
 Winchester Manufacturing Co., Ltd., Isleworth.

The offices of THE CHEMIST AND DRUGGIST will be closed from Thursday evening, April 5, until Tuesday morning, April 10.

QUININE SEIZED BY U.S. GOVERNMENT. — Since we announced in our issue of November 19, 1927 (p. 642), that the United States Government had served subpoenas on individuals and firms prominent in American quinine circles, for alleged violation of the Federal anti-trust laws, we learn that the authorities have now seized quinine valued at £20,000 from the Dutch warehouse of R. W. Greeff & Co., Inc., New York. At the same time the Attorney-General has issued a statement that the Government has instituted two actions under the anti-trust laws.



## Trade Notes

MANY PREPARATIONS of importance to chemists interested in agricultural and horticultural business appear in the advertisements in this issue—in the two-colour pages, for example, will be found announcements relating to the products of the following manufacturers:—ABOL, LTD.; J. C. M. BATTLE; BATTLE, HAYWARD & BOWER; THE BRITON FERRY CHEMICAL & MANURE CO., LTD.; BUGGÉ'S INSECTICIDES, LTD.; THE CATALINE CO., LTD.; THE DENVER CHEMICAL MANUFACTURING CO.; NORMAN EVANS & RAIS, LTD.; HAWKER & BOTWOOD, LTD.; GEORGE MONRO, LTD.; G. H. RICHARDS, LTD.

TOMLINSON & HAYWARD, LTD., manufacturing chemists, 51 Newland, Lincoln, advertise some of their specialities in this issue.

L. LEICHER, 27 Harcourt Street, London, W.1, have transferred their offices to 11-12 Pollen Street, Regent Street, London, W.1. Telephone: Mayfair 4031.

IRVING'S YEAST-VITE, LTD., 12-16 Laystall Street, Clerkenwell, London, E.C.1, make an announcement in this issue regarding the prices and bonus terms of Yeast-Vite tablets and Yeast-Vimal.

SCHERING, LTD., 3 Lloyd's Avenue, London, E.C.3, are the agents for the products of Schering-Kahlbaum A.G. (except Kahlbaum reagents and x-ray material) for the home and certain overseas markets.

PHOTOGRAPHIC SPECIALISTS.—A. C. Vallance, Ltd., manufacturing chemists, West Gate, Mansfield, call attention to the facilities they offer in regard to photographic developing, printing and enlarging.

PHOTOGRAPHIC CHEMISTS will be interested in the service referred to by J. T. Chapman, Ltd., 708 Chester Road, Stretford, Manchester, in their advertisement in this issue. A price list will be sent on application.

A WEIGHING MACHINE of unusual design, which is advertised in this issue by Autoway Co., 13 Wellington Street, Glasgow, can be purchased for cash or in monthly instalments. Full particulars may be obtained on application.

ENSIGN SNAPSHOT SERVICE.—Houghton-Butcher (Great Britain), Ltd., Walthamstow, London, E.17, offer to send chemists a brochure illustrated by views of their works and giving full particulars of their developing, printing and enlarging service.

NEW NORWEGIAN COD-LIVER OIL.—A sample of the new season's (1928) Lofoten cod-liver oil has been received from Freudentheil, Smith & Co., 21 Mincing Lane, London, E.C.3, who are the agents for Brodr. Aarsaether A./S. We find the oil to be of the usual good pale quality, practically odourless, and of sweet flavour.

LIVER EXTRACT B.D.H. is made by The British Drug Houses, Ltd., London, N.1, in accordance with the process elaborated by the Medical Research Council (see p. 411). It is issued in glass tubes, each containing the equivalent of half a pound of fresh raw liver—the daily dose given in the treatment of pernicious anaemia. Chemists are invited to apply for literature and prices.

EASTER PHOTOGRAPHIC TRADE.—In order to obtain full benefit from the extensive advertising campaign which Thomas Illingworth & Co., Ltd., Park Royal, Willesden Junction, London, N.W.10, are shortly undertaking, it is suggested that chemists should display the showcards and literature which the company can supply. In their advertisement in this issue Messrs. Illingworth depict an advertisement which relates to Easter "snaps."

TWO NEW PHOTOGRAPHIC DEVELOPERS have recently been placed on the market by Johnson & Sons (Manufacturing Chemists), Ltd., Renters Avenue, Hendon, London, N.W.3, namely, a warm-tone glycin developer, and a contrast developer. The former is supplied in powder form, packed in tins containing sufficient to make one gallon of solution. As the name implies, it is for use with the warm-tone chloro-bromide papers which are now so popular. The developer is also suitable for ordinary bromide and gaslight papers, with which it will give, according to exposure and development, a range of tones from warm black to sepia. The contrast developer is

specially for the use of those whose work requires sharp contrast. It is supplied as a concentrated solution in pint bottles (for making five to ten pints of developer) or Winchester (to make two and a-half to five gallons).

KU-BIST TOILET PREPARATIONS.—Goodall, Backhouse & Co., manufacturing chemists, Leeds, have sent for our inspection specimens of their Ku-Bist series of toilet preparations. It will be seen from the advertisement in this issue that preparations made from well-tried formulas have been enclosed in containers of novel design. The firm can supply plenty of advertising material to those who require it, and every chemist will be able to arrange an attractive display with preparations which strike so distinctive a note.

RIEDEL'S MENTOR.—The 60th edition (1926) of this well-known dictionary of new remedies and medicinal specialities, published by J. D. Riedel A.G., Chemical Works, Berlin, is a well-bound volume of 1203 pages, containing a brief description (in German) of the composition, uses, and—a very important feature—the manufacturers of approximately 20,000 products. The particulars contained in this book render it an exceedingly valuable work of reference for chemists, wholesalers and exporters when called upon to supply some unfamiliar preparation, or when asked for information regarding the composition or source of supply of any of the many specialities now on the market. The essential particulars of each preparation are so clearly and succinctly presented that a very slight knowledge of German is required to interpret the information conveyed, which has been brought up to date by two supplements issued in 1927 and 1928. Complete copies of Riedel's Mentor can be obtained from Messrs. Riedel's agents in this country, the Old Strand Chemical & Drug Co., Ltd., 41 Great Tower Street, London, E.C.3, at 30s. net.

## Trade-mark Applications

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary," 1928, p. 329.

(From "The Trade-marks Journal," March 7, 1928.)

- "VICTORY"; for photographic plates and films (1). By H. B. Foster & Sons, Ltd., 28 Springfield Road, Kingston-on-Thames. 437,923.
- "FAIRYLETS"; for soap (2), (3), (47), and (48). By T. Hedley & Co., Ltd., Phoenix Buildings, Collingwood Street, Newcastle-on-Tyne. 485,194/195/196/197. (Associated.)
- "HARKCOLATE" on curved shape; for liquid disinfectant soap (2). By J. W. Harker & Co., Ltd., 13 Billiter Street, London, E.C.3. 485,877.
- "SAPOFORM" with sketch of ship at sea; for chemicals (2). By P. Lunt & Co., Ltd., Park Lane, Aintree, Liverpool. 486,016. (Associated.)
- "SALUMATICA"; for a medicine (3). By C. H. D. Smith, 96 Manor Road, Wallington. 485,049.
- "ARTHRITIN"; for medicinal chemicals (3). By May & Baker, Ltd., Church Road, Battersea, S.W.11. 486,610.
- "HEED"; for medicinal chemicals (3) and for perfumery, etc. (48). By Bone, Royds & Co., Ltd., 125-130 Strand, London, W.C.2. 486,611/612. (Associated.)
- "MIRACULINE"; for medicated mouth washes (3). By W. C. Austin, 86 Algernon Road, Lewisham, London, S.E.13. 486,829.
- "VASANO"; for medicinal chemicals (3). By Schering-Kahlbaum, A.G., 170 Müllerstrasse, Berlin, N.39. 486,954.
- "CROZIN"; for all goods (3). By C. S. Cross, 275 London Road, Thornton Heath, Surrey. 487,015.
- "LEGIT"; for medicines (3). By E. & J. Hind, 17 Gadd Street, Nottingham. 487,216.
- "SPEDACTA"; for medicinal chemicals (3). By Hartness, Ltd., 2 & 4 Victoria Road, Clacton-on-Sea. 487,236.
- "LIFEBUOY"; for medicated soap (3). By Lever Brothers, Ltd., Port Sunlight, Cheshire. 487,484. (Associated.)
- Design of hop leaf; "THE HOP LEAF"; for medicated wines (3). By H. & G. Simonds, Ltd., Bridge Street, Reading. 487,649/650. (Associated.)
- "RUB-A-DUB"; for goods (47) and for perfumery, etc. (48). By J. Bibby & Sons, Ltd., King Edward Street, Liverpool. 487,220/221. (Associated.)
- "JADOR"; for perfumes (48). By "Simexport" Société Anonyme Pour L'Importation et L'Exportation, 29 rue des Petites-Ecuries, Paris. 486,689.



## Births

Notices for insertion in this column must be properly authenticated.

BOYES.—At a nursing home, on March 16, Constance, the wife of G. R. Boyes, B.Sc., Ph.C., 17 Brambledown, Crouch Hill, London, N.4, of a son.

REID.—On March 25, the wife of T. K. Reid, M.P.S., 3 Cavell Terrace, St. Budeaux, Devonport, of a daughter.

## Marriages

BAYLEY—MACGREGOR.—At All Saints' Church, Upper Sheringham, on March 19, Cornelius Felix Bayley, M.A., M.P.S., Uppingham, to Margaret Priscilla MacGregor, Sheringham.

LEVIN—STONE.—At Leeds, on March 14, Horace Victor Levin, M.P.S., Blackpool, to Lily Stone, Chapeltown, Leeds.

## Deaths

DALE.—At Steel Bank Pharmacy, Sheffield, on March 21, Florence, wife of Mr. John Dale, chemist and druggist. Interred at Crookes Cemetery on March 24.

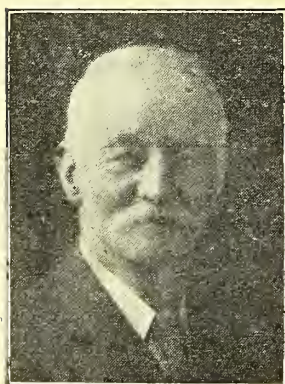
HAROLD.—At Clapham, London, S.W., on March 26, Mr. Edward Charles Harold, chemist and druggist, aged eighty-two.

HOULISTON.—At Belvedere, Glasgow, on March 22, Mary, the wife of Mr. J. S. Houliston, chemist and druggist, Bridgeton.

REINHARDT.—Recently, Isabella Mary, widow of the late Mr. J. C. Reinhardt, Ph.C., Leeds.

ROBERTSON.—At Hopebank, Clincarthill, Rutherglen, on March 20, Mr. David Stewart Robertson, chemist and druggist. Mr. Robertson, who qualified in 1889, took an active interest in public work generally, and was for a number of years a member of the local town council.

STOUT.—At Medical Hall, Lerwick, on March 22, Mr. Charles Brown Stout, aged eighty-two.



MR. CHARLES B. STOUT

Mr. Stout was apprenticed in 1864 to Dr. Loeterbach, a well-known medical practitioner, who at that time had the only dispensary in the Shetland Islands. A few years later, on the death of Dr. Loeterbach, Mr. Stout acquired the business; thus till his retirement a year or two ago he was connected with pharmacy for over sixty years. The business was taken over by his son, Mr. Charles B. Stout, chemist and druggist, in 1914. The late Mr. Stout was always keenly interested in local affairs and served on the various municipal bodies of the town. He was the

oldest Freemason of the Morton Lodge 89, and a trustee for over twenty years. Mr. Stout was closely connected with Church work, being an elder of St. Olaf's U.F. Church, and treasurer of the Sustentation Fund for over forty years. He was one of the most genial of men, and his kindly personality had earned him a host of friends. Despite his advanced age, Mr. Stout retained his faculties to an unusual degree, and up to the time of his passing was as vigorous mentally and physically as men very considerably his junior. He was a member of the Lerwick Bowling Club till the time of his death. He is survived by a widow, five daughters and two sons, one of his daughters, Miss Jessie A. Stout, being a chemist and druggist.

## Personalities

MR. D. JONES, chemist and druggist, Towyn, has been elected (unopposed) to the Machynlleth Board of Guardians.

MR. G. S. DURRANT, chemist and druggist, Hertford, has been elected a member of the committee of the local chamber of commerce.

THE name of Miss H. Stewart was inadvertently omitted from the list of speakers at the March meeting of the Western Pharmacists' Association (*C. & D.*, March 24, p. 377).

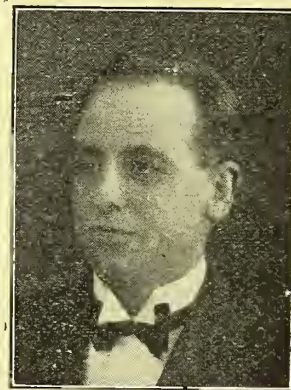
MR. STUART A. HIRST, publicity manager to C. E. Fulford Ltd., manufacturing chemists, Leeds, contributed to "The Yorkshire Evening News" of March 23 a reminiscent article entitled "Earning My First Shilling."

MR. R. A. ROWLANDS, chemist and druggist, Sutton, Surrey, played with great success the part of Andrew Wake in the recent presentation of "Dr. Wake's Patient" by the Sutton Court Dramatic Society.

A SERIOUS OPERATION was performed on Mr. Harry Hebden, Ph.C., proprietor of W. C. and H. Hebden, manufacturing chemists, Halifax, at his residence on March 26. His many friends will be glad to know that he is now out of danger.

THE degree of Doctor of Pharmacy "Mention très Honorable" was recently conferred by the University of Nancy on Mr. Jules Cofman-Nicoresti, chemist and druggist, whose thesis deals with "Dispersed Systems."

Dr. Cofman-Nicoresti, who was born in Roumania, is keenly interested in the professional side of pharmacy, and represented that country at the International Congress of Pharmacy in London in 1923, at which he put forward a strong plea for the institution of an international agreement in respect of the strength of "heroic" and other remedies. Among other matters in which he has taken a keen interest is the analysis of dispensed medicines, and most chemists will recall his activities on their behalf during the controversy which raged a few years ago.



DR. J. COFMAN-NICORESTI

## Wills

MR. JOHN RICHARD HANKEY, of 9 Victoria Avenue, Brierfield, Lancs., proprietary medicine manufacturer, who died on January 6, aged forty-nine years, left estate of the gross value of £5,280 5s. 9d., with net personality £4,169 3s. 4d.

MR. JOHN KENRICK CHAMPION, of 8, Beaufort Road, Clifton, Bristol, at one time associated with Christopher Thomas & Brothers, Ltd., soap manufacturers, Bristol, who died on December 22 last, aged seventy-five years, left estate of the gross value of £18,117 17s. 11d., with net personality £17,932 17s. 11d.

## Information Department

### INFORMATION WANTED

Postal or telephone information with respect to makers or first-hand suppliers of the undermentioned articles will be appreciated:

|   |  |
|---|--|
| B/225. After-shaving tonic antiseptic, in long round orange - coloured bottles, marked (?) E. L. Flint, Paris | S/233. De Beer's bandages                      |
|   | M/283. Miroculens liniment for horses          |
|   | B/173. Sayer's gauze plaster of paris bandages |



## Observations and Reflections

By Xrayser III.

### Unusual Wording

struck me in a recent advertisement of a new line of proprietary articles, not medicinal, in a daily newspaper. They were to the effect that the articles in question were only to be obtained at certain stores which are noted for selling nothing above sixpence. It was not claimed that the preparations were produced by the proprietors of the stores and, as a matter of fact, they are offered under a totally different name; but it struck me as a remarkable thing that the manufacturers, whoever they are, should feel sufficient confidence in the stores as a channel of distribution to justify a manufacturer in restricting supplies to them. And that led me to reflect upon the growing tendency to offer sixpenny sizes of products not previously obtainable in such a size, apparently with the object of inducing the stores in question to sell the articles. From what I can gather, there is now an extraordinary range of goods to be got at the sixpenny shops, and many kinds of retail businesses are being attacked seriously by this growing competition. Some manufacturers of packed goods seem to make a practice of offering job lots to these stores, and I should not be surprised to find chemists and other retailers compelled soon to do something in self-defence. A not unlikely line of attack would be to offer the same lines as are sold at sixpence for fivepence-halfpenny or less. Let me hasten to explain that I am not suggesting a "cutting" campaign, but simply pointing to a not improbable development.

### Another Branch

of the Pharmaceutical Society is feeling the pinch due to the insufficiency of the half-crown subsidy to meet the case (*C. & D.*, March 24, p. 378). I am not surprised that Bradford finds it "exceedingly difficult to develop the activities locally on the amount of grant per member made from Pharmaceutical Society headquarters"; but difficulty of this kind is inherent in the subsidy system. More money than is actually required by the Society is taken from members in the shape of the annual subscription, so that half-a-crown per head may be returned for branch expenses. As a result some branches get a great deal more money than they need, while others get too little. Much of the money is wasted in either case, and I am firmly of opinion that we were better off locally with the old associations in an independent position. But those who devised the existing scheme of branches do not appear to have had much affection for the associations, particularly those which were strong as well as independent.

### Assaulting Inspectors

is an expensive form of occupation, and has usually been restricted to cases under the Factories Acts, Sale of Food and Drugs Acts, and so forth. Moreover, the assaults on record have, as a rule, been more or less of a technical nature. It was apparently otherwise, however, in the recent case at Willesden, where one of the Pharmaceutical Society's women inspectors had to cry out for help when a bottle of lysol she had purchased from an unqualified dealer was rudely snatched away from her by the defendant in the case. The surprise assault was successful to the extent that evidence of the sale was removed and the Society's prospect of getting a five-pound penalty vanished; but the cost to the defendant was quite as great. Our sympathies naturally go out to the lady in the case, who so valiantly endeavoured to maintain our statutory privilege.

### One of the Minor Afflictions

of the pharmacist is the difficulty he meets in the acquisition of a proper and precise knowledge of his standard weights and measures. The note in your last week's issue (p. 364) on the action of the Pharmaceutical Society's Council in 1878 in the matter of apothecaries' weights deals with an example of the awkward attempts which have been made at different times to formulate a system of weights and measures

convenient for pharmaceutical purposes. Prior to the period inaugurated by Priestley and Lavoisier, when chemistry was revealed as a science of inherently controlled quantities, the relations of weights and measures were inexact and extraordinarily inconvenient. A reference to the pharmacopœias published before the nineteenth century shows what disadvantages the apothecary had to deal with. For instance, he had to employ a pound of twelve ounces (troy weight) for solids which was designated a libra, and for liquids he used a wine pint of sixteen ounces, also styled libra. These two libras bore no simple relation to one another, a pint of water weighing rather over fifteen ounces. The first pharmacopœia which made an effort to indicate clearly to the compounder which of these two was to be employed in its individual formulas was that of the Royal College of Physicians of London, published in 1788. When the pound weight was intended the letter "P" (pondere) was used thus, "P. libras duas," and when the pint was desired the letter "M" was used, "M. libram unam."

### The Edinburgh College,

in the 1792 edition of their Pharmacopœia, entirely rejected measures, and ordered that troy weight was to be employed for liquids as well as solids. This drastic method of abolishing the discrepancies between the weights and measures was one which must have given satisfaction to the apothecaries of North Britain. Unfortunately, however, the conveniences of the matter would not consent to be obscured in this simple fashion. So, "for greater convenience in weighing water, wine and other fluids of nearly the same specific gravity, they recommended the use of glass measures subdivided like the weights into ounces, drachms and grains." The practical Scot thus prevailed over the logical Scot and, as in so many other instances, played the part of a pioneer. The glass measures were cylindrical and were of three sizes, the largest being ten inches high and graduated in twelve ounces; the intermediate one was graduated to two ounces with sixteen divisions (drachms), and the smallest was a two-drachm measure with divisions for 120 grains. The College of Physicians appears to have supplied the patterns, and the measures were made at the glass manufactory at Leith. It would be interesting to know if any of these measures have survived the attentions of four generations of pharmaceutical apprentices. It must have been a welcome change to the dispenser for him to be able to discard the measuring of medicines by the slipshod method of counting the drops.

### The Revolutionary Procedure

of the Edinburgh College had its influence upon the London College, as appears from the changes which were introduced into the London Pharmacopœia of 1809. One of the improvements was one of those good things which are universally accepted as good, and upon which no comments are made; it was the invention of the name octarius, with its symbol "O," to displace the liquid libra. The measure, however, remained sixteen ounces. Another innovation of great value was made possible by the invention of the glass measures, particularly by the invention of the conical measures by Timothy Lane. Hitherto for quantities of liquids less than the ounce "spoonfuls" and "drops" had to be employed; but the glass measures brought the fluid drachm and the fluid grain into existence, which latter the London College designated a minim, assigning to it the symbol "m."

**SAVING THE COFFEE CROP.**—The ravages of the mealie bug have recently been causing concern among the coffee-growers of Kenya. Dr. E. L. Robinson, at the Cooper Technical Bureau, which was consulted on behalf of the Kenya Government, explained to the "Daily Telegraph" that ladybirds are the mealie bug's natural enemy, but latterly they in turn had been threatened with extinction by the sub-tropical ant, which climbs the tree and destroys them. Through the efforts of the bureau the trunks of the trees are now being encircled by bands smeared with a preparation which entangles and destroys the sub-tropical ant in its attempts to ascend the trees, thus leaving the ladybird free to destroy the mealie bug.



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# SPIRITS OF WINE

DUTY PAID DUTY FREE EXPORT

**ABSOLUTE ALCOHOL**

**ORANGE WINE—B.P.—SHERRY**

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(Est. 1820)

## Editorial Articles

Chemists and Cultivators

REVOLUTIONARY is an apt description for many of the changes which are taking place in agriculture and horticulture at the present time. Research is being carried on both in this country and abroad on a more intensive scale than at any previous time, and, while research and manufacture invariably go hand in hand, in these days when almost everyone is interested in the land—whether an allotment or an estate—efficient distribution to the public is a vital factor in successful business. As each branch of industry is equally important, co-operation is obviously essential, and it is with the object of assisting those concerned that a large portion of this issue of THE CHEMIST AND DRUGGIST is devoted to agricultural and horticultural matters. The quantity and variety of chemicals used in farming is increasing by leaps and bounds, the outstanding example of this progress being in the use of artificial fertilisers. This is to some extent due to the lack of farmyard manure, but



mainly to research in soil science and to the practical application of the knowledge so gained. For example, dairy farmers and stock breeders are being urged to adopt rotational grazing, i.e., the land is divided into plots, tested for acidity, and suitable fertilisers, such as lime, phosphates, potash and nitrogen applied at intervals to each plot. The herds are then grazed on each section in turn, being moved from one to another in such a way that by the time the grass on the last is eaten down that on the first is again ready for the stock. Soil reaction is one of the principal factors influencing plant growth, and is of equal importance to the largest farmer and the smallest gardener. Tests of the hydrogen-ion concentration could easily be carried out by chemists, who would then be able to advise on the necessary treatment of the soil. Elsewhere in this issue we deal with the uses of calcium cyanide and nicotine. Up to the present the former has not been used on an enormous scale in this country, but it is unquestionably an agricultural chemical with a future. There is no doubt about its efficacy as a soil fumigant and a vermin destroyer, while in almost every instance where hydrocyanic acid is employed the liquid can with advantage be replaced by the calcium salt; in fact, the latter is frequently referred to as "powdered hydrocyanic acid." As a poisonous cyanide it, of course, comes within Part 1 of the Poisons Schedule. Spraying plays so important a part in horticulture that in many districts it would pay chemists to specialise in supplying articles for this branch of work. In this connection the advent of tar distillate washes was a remarkable advance of technical and economic importance. Though the period of the year for the application of these sprays is over (they must be used when the buds are dormant), and even admitting that the larger fruit growers are aware of their advantages, the present is quite a favourable time to draw the attention of the owners of fruit trees in gardens to the results obtainable by the use of winter washes. Most fruit trees which have not had a winter spraying suffer from "blight," and a request for a spray offers an opportunity which a tactful chemist can, with the aid of his scientific knowledge, turn to good account. Users of nicotine sprays have not always been satisfied with the results obtained with them, but in every case that has come to our notice there has been, on inquiry, an explanation of the cause of failure, and it is where difficulties of such a nature arise that the chemist should be able to demonstrate the superiority of his knowledge over his less technical competitors. Agricultural and horticultural business in chemical preparations can be made so profitable that chemists are bound to meet with competition from all classes of traders, while on the other hand, farmers are among the keenest of buyers. The fact remains, however, that the chemist is the only person qualified to act as intermediary between the manufacturer and the user of preparations of a chemical nature, but the maker of an article in a universal demand can rarely afford to restrict his retail distribution. It is nevertheless of the utmost importance for him to use the most suitable avenues for rendering his product available, and it will be of mutual benefit if advantage is taken of the chemist's technical training. In the case of poisonous preparations the position is generally appreciated, but even in the case of non-poisonous substances the need for co-operation between manufacturer and chemist is almost equally great, since it is quite possible for reactions to occur which would nullify the value of the most efficient preparations. An instance of how this might happen is if ammoniacal material were mixed with one containing free lime, such as basic slag, or with mineral phosphate containing much chalk, in which case there would be a considerable loss of

ammonia. It is obvious, therefore, that a lack of chemical knowledge can easily render comparatively useless some of the most efficient preparations—whether proprietary or otherwise. Several *C. & D.* subscribers have of late referred to the excellent results they have obtained with this class of business, and particularly with horticulturists, but in each case it has been emphasised that it has been necessary to study the growers' requirements in every respect (even if they occasionally appear unreasonable), and, in the case of some articles to be prepared to supply the best quality at strictly competitive prices.

### Sharp Movements in Mercury

WHILE there is not the least reason for modifying the views expressed in our issue of February 25 (p. 249) as to market prospects in mercury, due to over-production and inflated prices, the technical position on the spot materially strengthened, largely in consequence of the marked decrease in imports in February. At the same time, consumers who had since the beginning of the year been buying strictly from hand to mouth, as was to be expected on a declining market, were eventually forced to purchase quite large quantities. This, together with repurchases attempted by dealers, obviously made for a most sensitive market, and since mid-March this was translated into a sharp spurt up to about £22 10s. per bottle on the spot, less the customary discount for small lots. Simultaneously a considerable business was placed for the Far Eastern markets (chiefly China), which, with the full maintenance of terms of £21 10s. per bottle f.o.b. either from Spain or Italy, under the dual first-hand control, have been the main factors, accounting for what is described as an artificial stringency over a certain period, in spite of the fact that stocks at the mines must have been accumulating. It is to be feared that "squeezing" tactics will be prevalent for at least another month; and this will keep the spot price at above the parity of first-hand cost f.o.b. The recovery in the spot value from the lowest figure reached in the earlier part of the month amounts to not much less than £2 per bottle. In our concluding remarks in our issue of February 25, we advisedly suggested that under the combined control exercised by the Spanish and Italian mines, some resistance was apt to be encountered at the lower levels. There is no doubt that the surplus stocks carried into this year on this side, which were believed to be of respectable dimensions, have been largely eaten into presumably by well over 2,000 bottles, judging from the official home returns of imports and re-exports for the first two months of this year. Yet there is reason to assume that there is so far no serious or acute scarcity, but the attenuated stocks in existence are doubtless firmly held on account of the fact that no very large quantities will be shipped to this side before another month or so. The official home returns given below are particularly striking, as they show that this country has been re-exporting mercury on balance during the first two months of the year.

| Bottles                               | 1926  | 1927  | 1928 |
|---------------------------------------|-------|-------|------|
| U.K. imports, February ...            | 1,678 | 1,647 | 79   |
| U.K. imports, January-February ...    | 2,766 | 3,618 | 792  |
| U.K. re-exports, February ...         | 414   | 66    | 729  |
| U.K. re-exports, January-February ... | 590   | 189   | 898  |

It will be seen therefrom that our imports for the two months were only 792 bottles—a big decrease compared with the same period last year—and actually over 100 bottles short of the quantities re-exported. The fact that 729 bottles were taken for re-export last month against a very small quantity coming in, is suggestive of the completion of urgent shipping orders. Total outgoings for



last month, allowing for an estimated normal home consumption of 2,000 bottles and the quantities re-exported, as indicated, were approximately 3,000 bottles. The meaning of the absurdly small receipts so far this year is that surplus stocks are threatened with exhaustion and that importers are disinclined to hold normal stocks at the dangerously inflated price. The full normal world's consumption may be placed at between 96,000 bottles and 100,000 bottles, according to the opinion expressed in quarters closely conversant with the general outlet for mercury, although there has been a considerable increase in American requirements of late years. Even assuming that the approximate estimates of production we mentioned under date of February 25 last might perhaps have been on the high side, and placing the total world's output at, say, 136,000 to 138,000 bottles, stocks in producers' hands in the past year would have accumulated to the extent of well over 30,000 bottles, so that unless there is a curtailment policy adopted by the two leading producing countries in the current year, a surplus of approximately 60,000 bottles would be piled up within the two years. The financing of an accumulation at this extravagant rate with a grossly inflated market price would undoubtedly prove such a severe strain on the Spanish and Italian industries that it could not be maintained over a long period.

## Poisonous Plants

FOR some time past interest has been taken in plants injurious to live stock, and there have been numerous contributions to literature on the subject. The Ministry of Agriculture and Fisheries recently issued a booklet (2s. post free) on "Poisonous Plants on the Farm," compiled by Mr. H. C. Long. This little work is comprehensive, and, being intended for circulation among the farming community, is easily read. There are fifty-one illustrations, which will be invaluable in facilitating recognition. It is pointed out that cattle may be lost not only by grazing in affected fields, but also by browsing on noxious plants in neighbouring gardens or on clippings and other rubbish from shrubberies. Many plants, though perhaps not really poisonous, do much damage by tainting the milk of dairy cows and the products made from it, as well as the flesh of the animals. Certain wild plants are weed pests in the ordinary sense of the term, but the harm they may do is immensely increased by reason of their poisonous properties. In many instances the search in the pasturage or in the dried fodder for a possible poisonous plant is a case for a trained botanist. Animals differ widely in the readiness with which they consume harmful wild plants, some instinctively avoiding them, although when keep is not plentiful cattle will sometimes browse on plants which are acrid, contrary to their taste and instinct. Reduction in the milk yield can often be traced to an obscure form of poisoning. The virulence of the effects varies with the time of year (age of fodder), and is also influenced by the soil and climatic conditions.

When it has been determined that a poisonous plant is present, the problem of eradication presents itself. Generally speaking, in the case of annuals or biennials, cutting and burning is sufficient, but in the case of perennial water-side weeds it is necessary to remove the rootstocks. The time of mowing must be arranged according to the flowering time of the particular plant being dealt with, and it is essential to make repeated observations and regular removal of any fresh plants which may appear. Usually a single cutting of an individual plant suffices to destroy it in the case of annuals and biennials. Perennials are often much more troublesome, especially when present in arable land, for they can only be attacked in early spring before the seed is sown, or in the autumn when the crop has been harvested. There is also a legal aspect where poisonous plants are concerned. It has been held that where a yew tree grew through and over a fence and projected on to a meadow occupied by the plaintiff, the owner of the tree was liable for the loss of a horse which was poisoned by eating the foliage of the tree.

## Associations' Winter Session

**Ealing.**—The Ealing and District Pharmacists' Association, with the Ealing Branch of the Pharmaceutical Society, held a smoking concert on March 20 in aid of the Benevolent Fund. Many members and friends from other Metropolitan associations were present. All the items included in the entertainment were given by members or friends. A vote of thanks to Mr. Arnold Roberts and Mr. Thomas Marns, to whom credit was due for the organisation of the function, was heartily carried. Mr. R. J. Morton Sennitt (president) announced that £10 had been realised for the Fund.

**Ipswich.**—The annual meeting of the East Anglian Federation of Pharmacists and Group Executive R.P.U. was held on March 21. The president, Mr. S. G. Tydeman, was in the chair. The treasurer's report showed a balance in hand of £24 4s. 4d., and the secretary, reporting on the year's work, also appealed for larger attendances at the meetings. Both reports were unanimously adopted. The president, in his address, spoke on *Things as They Are*, and while conceding that the position of pharmacy might be better, considered that if they looked at the situation broadly there was no doubt that it stood in a very much better position to-day than it did years ago. The following officers were unanimously re-elected: *President*, Mr. S. G. Tydeman (London); *Treasurer*, Mr. J. W. Bodger (Peterborough); *Secretary*, Mr. H. F. Hayllar (Hoddesdon, Herts.). Mr. A. H. Jenkin (member of Council) gave a short address. A vote of thanks was accorded Mr. Jenkin. Following the meeting a dinner was held, at which the chair was taken by Mr. Sidney Stearn, president of the Ipswich and Suffolk Pharmaceutical Association. A number of toasts were proposed and responded to, and with a musical programme a very sociable evening was enjoyed by all.

**London (S.W.).**—On March 20 a lantern lecture on *Beautiful Britain* was given by Mr. H. A. Mills, Ph.C. The slides, which were all taken by Mr. Mills, illustrated the possibilities of the art of colour photography. Hope was expressed that this lecture would serve to promote the interest in this art, which made a delightful and fascinating hobby.

**Newport.**—The Newport Chemists' Association held their third annual whist drive and dance on March 21. The members and guests were received by the president, Mr. Christopher C. Giles, and Mrs. Giles, and while the majority turned at once to the dance, the others took part in a whist drive, in which the prizes were won by Mrs. Gilbert Kenwyn, Mrs. Biddle, Mr. J. Gould, and Mr. J. H. Jackson. Mr. Gould was M.C. for the whist, and Messrs. Padget and Evans for the dance.

**Southampton.**—The annual general meeting of the Southampton Chemists' Social and Athletic Club was held on March 20, when the following officers were elected for the ensuing year:—*President*, W. J. Pearson; *Treasurer*, M. E. Tidbury; *General Secretary*, C. F. Conway, 124 St. Denys Road; *Assistant Secretary*, J. Winsor; *Auditor*, W. H. Benest. Football: *Captain*, H. Ventham; *Vice-Captain and Secretary*, H. Pickup. Cricket: *Captain*, F. Trussler; *Vice-Captain and Secretary*, H. Ventham. The following members were elected to serve on the Committee: Messrs. Atkinson, Holes, Leeson, Wilson and Young. The retiring president, Mr. F. Young, wished the club every success during the coming year.

**Women Pharmacists.**—At a meeting of the National Association of Women Pharmacists on March 22 the president (Miss E. Hooper) was in the chair. Addresses were given by Miss M. H. Hunter (missionary and probation officer of the North London Police Court) and Miss J. Heywood. Miss Hunter spoke first, and said she wished to tell the audience exactly what her work was. Many questions were asked, and an animated discussion followed, in which Miss Edmond, Miss Hooper, Miss King, Miss Loader, Miss Blundell and Miss Dennis Hayes took part. Miss J. Heywood, until recently the only police woman at Eastbourne, then gave an account of her work, and told some pathetic stories. A vote of thanks was proposed by Miss Edmond. Coffee and refreshments brought the evening to a close, the speakers still continuing to answer questions.



## Nicotine as an Insecticide

By G. Fox Willson, N.D., Hort., F.E.S., Entomologist to the Royal Horticultural Society

NICOTINE ( $C_{10}H_{14}N_2$ ) is the most useful and toxic substance entering into the composition of contact insecticides. It is a plant alkaloid, so that its effect, when used at the strength required to kill, sucking insects, will not injure the most delicate foliage. All species of *Nicotiana* contain this alkaloid in strengths varying from 0.5-8.5 per cent. It possesses a high boiling-point ( $247^{\circ} C.$ ), and has a specific gravity of 1.011 at  $15.5^{\circ} C.$  Pure nicotine is a colourless, almost odourless, water-soluble, oily liquid, whilst the commercial product is dark brown and pungent. It rapidly undergoes oxidation on exposure to air, and should always be stored in air-tight metal containers. A serious drawback to the grower is its relatively high cost. During the years 1910-1916, the horticultural Press agitated for official permission to allow growers to cultivate their own tobacco for spraying purposes. A suggestion was made that, provided, compulsory spraying of the crop with lime-sulphur or copper washes was carried out, there would be no margin for abuse in using the foliage for illegal purposes. When purchasing the commercial product, a guarantee against fraudulent adulteration should be insisted upon. The most likely adulterants are water, ammonia and pyridine. The presence of the last-mentioned is difficult to detect, and the services of an analyst will be necessary.

### TOXICITY TO ANIMALS

Nicotine possesses a sharp burning taste and is highly toxic to vertebrates. There are many people who, even if they inhale the fumes, are affected and overcome with giddiness and sickness. The action of nicotine on insects is to cause a complete paralysis of the motor centres brought about by a condensation of the vapour upon the walls of the tracheæ (breathing tubes), and subsequent absorption of the nitrogen atom by the nitrogen fat compounds that make up the nerve tissue, with the result that further absorption of oxygen is stopped and the insect is killed. Until recently, it was thought that nicotine solutions passed into the tracheæ and penetrated into the integuments of insects, but it is now known that it is only the fumes from fumigants and the vapours from evaporated spray solutions and odoriferous particles from dusts which pass into the tracheæ and are widely distributed to all the tissues. Nicotine is far less certain in its action when used as a stomach poison against biting insects, on which it acts mainly as a repellent. Nicotine is used for horticultural purposes in the following forms:—(I) As a contact wash against (a) sucking insects, e.g., plant lice (aphides), capsid bugs, leaf hoppers (jassids), immature scale insects (coccids), apple sucker (*Psylla mali*) and thrips, and (b) biting insects, e.g., the early larval stages of moths and sawflies and the leaf-mining larvæ of moths and flies; (II) as a dust against leaf-curling aphides and sawfly larvæ which cannot be reached by a spray; (III) as a fumigant against sucking insects under glass.

### APPLICATION AS A CONTACT WASH

The old method of preparing a nicotine wash was to make a water infusion of tobacco-leaf waste, but this was not satisfactory, as the operator was unable to ascertain the percentage of nicotine in the subsequent wash. For spraying purposes, the best form to use is commercial nicotine (95-98 per cent.) which, with the addition of soft-soap solution, is directly applied to plants. To prevent the removal of "bloom" on plants with waxy foliage, e.g., carnations, cabbage and glaucous-foliaged spruce, saponin may be substituted for soap. Failure to ensure a satisfactory control against sucking insects with a nicotine wash may be due to the following causes:—(i) Poor pressure—a pressure of not less than 90 lb. to the square inch is necessary to break down the waxy covering of certain species of aphides, particularly woolly aphis ("American blight") and mealy plum aphis and the spittle-like excretion of the cuckoo-spit insect; (ii) wrong type of nozzle—a nozzle which gives a pene-

trating cone spray is necessary; (iii) wrong part of the plant sprayed—most sucking insects congregate on the under-surface of the leaves and on the young tender shoots, and unless the wash is directed to these parts and the insects actually hit by the spray, a low mortality will result; again, a higher mortality against leaf-mining larvæ will result when the lower surface of the foliage is sprayed; and (iv) an absence of thoroughness—care should be taken to see that all infested portions of the plants are sprayed otherwise many insects will escape, and, owing to their high rate of fecundity, will again become a serious menace in a short time. The most satisfactory formula for sucking insects is:—

|                               |        |               |
|-------------------------------|--------|---------------|
| Nicotine (95 to 98 per cent.) | =      | 7½ oz.        |
| Soft soap (potash)            | ... .. | = 10 lb.      |
| (or saponin = 2 oz.)          |        |               |
| Water                         | ... .. | = 100 gallons |

The nicotine content must be increased to 10 oz. for young caterpillars.

Certain precautions must be taken in using this insecticide, e.g., to refrain from spraying lettuce and other saladings with nicotine wash for some days before the plants are used for table, and it is also inadvisable to spray tender-foliaged plants in bright sunshine, as scorching will often result. The flower of chrysanthemums, dahlias and sweet peas are not discoloured by this wash provided the application is made on a dull day or late in the evening. The disadvantages of a wet spray over a dust are:—(i) The application covers a lengthier period; (ii) lack of penetration into curled leaves; (iii) difficulty experienced in traction over rough ground and hilly districts; and (iv) unsuitable water supplies.

### NICOTINE AS A DUST

The finer the grade of dust, the greater efficiency both as to adhesiveness, penetration and killing power. An efficient dust must also be dry and non-absorbent. It is mixed with a carrier, e.g., calcium hydrate, kaolin (hydrated aluminium silicate) or gypsum, so as to contain 2 per cent. of nicotine. The disadvantages are:—(i) Relatively high cost; (ii) volatility—the action is slower than when used in solution; (iii) a lowered mortality if rain falls soon after the operation; and (iv) distress to operators if a wind springs up, forcing a cessation of operations.

### USE AS A FUMIGANT

It is used extensively as a glasshouse fumigant, and may be employed in conservatories provided that the doors leading into living rooms are made airtight. The most satisfactory method is to vapourise the material, which usually contains 50 per cent. nicotine, over a spirit lamp. Many proprietary nicotine fumigants are composed of dried tobacco leaf-waste either in the form of shreds, mixed with a combustible medium, e.g., sawdust, and moulded into the form of a cone or sheets impregnated with saltpetre and soaked in nicotine. Nicotine vapour possesses a selective action, and, whereas its efficiency against aphides and thrips is undisputed, it has little effect on the immature stage of white or "snowy fly," scale insects and "red spider." Open-air fumigation with tobacco waste has been carried out in Canada with marked success against apple sucker (*Psylla*). The tobacco waste (360 lb. to the acre) is placed in small heaps, damped to prevent quick combustion, and ignited by means of a torch.

### COMPATIBILITY WITH WASHES AND WATERS

For reasons of economy in labour and time, it is urged that two or more washes be applied to fruit trees at the same time. Under certain conditions, nicotine-soap wash may be mixed without danger to plant life with the undermentioned insecticides and fungicides:—Lead arsenate, Bordeaux mixture, lead arsenate and Bordeaux, lime-sulphur, lime-sulphur and lead arsenate, and also ammonium polysulphide. Danger may arise from the presence of soap in the contact wash, but its presence is necessary to increase the efficiency. As many commercial soft soaps contain free alkali and some lead arsenates are acidic, the result is that a chemical reaction is set up and soluble arsenic is formed, which



produces serious leaf damage. Provided that a neutral soap and a basic arsenate are used and the wash applied as soon as possible after mixing, the danger from scorched foliage will be reduced to a negligible quantity. A serious drawback, however, to the combination of a contact wash with either a stomach poison or a fungicide is the necessity for the first-named to be applied as a "drench" spray, whilst the others should be applied as a "mist" spray to allow the particles of lead arsenate or copper to remain as a film on the foliage. One of the most important factors bearing on the efficiency of a contact wash is the type of water used. Rain water is the most suitable supply for spraying. Where hard waters are used the soap content must be increased to prevent the formation of an insoluble curd. Surface water supplies vary with the geological formation of the surrounding country, whilst shallow and deep well waters are usually hard and should be avoided. Brackish waters must never be used for spraying plants.

#### PROPOSED LEGISLATION

In 1918 a suggestion was put forward by certain manufacturers of insecticide and fungicides that the Government should introduce a Bill for "legal control of quality of commercial sprays with common names." In early 1919 a committee formed by the Chamber of Horticulture made representations to the Ministry of Agriculture, with the result that the Government promised to introduce a Bill, but this was deferred in the spring of 1921 owing to need for Government economy. There appeared in the *Journal of the Ministry of Agriculture* (October, 1921) an article dealing with the proposed legislation where it is urged that "Purchasers of insecticides and fungicides are earnestly advised to stipulate before taking delivery that the articles supplied should comply with the conditions laid down." The conditions with regard to nicotine are that the term nicotine is properly applied to the chemical in its free or uncombined state. It is urged that purchasers of this material should have a statement from the seller "as to (1) whether the article is free nicotine or nicotine in combination, such as nicotine sulphate, and (2) the percentage of free nicotine in the article or, if the latter contains nicotine in combination, the percentage of free nicotine which will be produced on treatment with an alkali."

#### OTHER FORMS USED IN SPRAYING

Nicotine sulphate, better known among growers as "Black Leaf 40," is a cheaper form of nicotine and is obtained by combining nicotine with sulphuric acid. The nicotine must be released by the addition of a soot which is sufficiently alkaline to produce the desired effect. It is an efficient insecticide when used at the rate of 20 oz. to 100 gallons of water, in which has been dissolved 10-15 lb. of an alkaline soap. It is non-volatile, and great care must be taken in its application to plants—the spraying of fruit, vegetables and saladings with this wash should be rigidly avoided. When caterpillars are forced to eat foliage sprayed with nicotine sulphate, the material acts as a stomach poison, but the usual action on leaf-eating insects is a repellent one. Nicotine oleate is produced by mixing a solution of nicotine with commercial oleic acid, and, when emulsified with a heavy oil, it has proved a valuable wash for the destruction of insect eggs and scale insects on dormant fruit trees. Like nicotine sulphate, it is non-volatile, and should not be used except as a dormant spray on deciduous trees.

"A NEW DEFINITION OF 'INSECT' is threatened in connection with the Destructive Insects and Pests Bill (writes a correspondent), and I observed recently that you referred to this in the column headed "Westminster Wisdom." If the wisdom of Westminster is prepared to go the length of including bacteria and other vegetable organisms in the category of 'insects,' it would appear to be high time to reconsider what exactly the word 'wisdom' connotes. But not only is 'insect' to be defined, according to this wonderful Bill, as including bacteria, etc.; it is also to include a variety of animal organisms and 'any agent causative of a transmissible crop disease.' Apparently we may yet live to see human beings and appliances used in agriculture classified as insects by Act of Parliament."

## Selling Fertilisers

FERTILISERS of several kinds are wanted by chemists' customers, most of whom have either a garden, an allotment, a few room plants, or perhaps an orchard, fruit garden or nursery. Certain fertilisers described below are often difficult to get in small quantities retail, and it would be meeting a need in horticulture if chemists were prepared to supply a few ounces or a pound at a time, with directions for use. In addition to supplying individual fertilisers to growers of a definite class of crop, chemists can also sell special compound plant stimulants of their own, say, for instance, a mixture of ammonium sulphate and superphosphate, for use as a general plant stimulant. Most of the fertilisers mentioned are suitable for ordinary soils and gardening conditions. Chemists should remember, however, that the specific use of nitrates is to encourage the production of leaves, of phosphatic fertilisers to encourage seeds, roots and fruits, and of potash fertilisers to increase quality and hasten on the maturity of the crop, and hence must offer appropriate kinds to different growers, superphosphate, for instance, being no use for a man who grows mostly cabbages or lettuces.

#### THE AMMONIAS

Ammonia fertilisers should be sold with a printed guarantee of the percentage of nitrogen they contain, and a printed warning should be attached to every container telling horticulturists not to mix any lime or basic slag with them, otherwise some or all of the ammonia is pretty certain to be volatilised. Among the most useful ammonia fertilisers are the phosphate, sulphate, chloride and nitrate. The specific use of many of these is to increase leaf production only. Ammonium phosphate is rather an expensive chemical, and its use is more or less limited to the cultivation of exhibition flowers. Chemists should point out that it is a dual fertiliser, supplying as it does soluble nitrogen and soluble phosphates. It should be sold in small tins, and there should be an indication that the rate of application is one-quarter to three-quarters of an ounce to a gallon of water. It should be specially offered to those who grow sweet peas and other flowers for the show table. Ammonium sulphate is a common fertiliser which can be sold in paper bags perfectly safely, provided that they are rather stout. Directions should be supplied with it, to the effect that horticulturists will find it gives the best results if used exclusively for leaf crops, such as cabbages, lettuces and endive. It is also suitable for use on tennis courts and golf courses. Ammonium chloride gives the best results if applied to ground in the late winter, and this fact should be printed on every packet containing it. It should mainly be offered to those who grow the cabbage family and salad plants, such as lettuce, endive and corn salad. Ammonium nitrate is one of the fastest and richest nitrogenous leaf-crop fertilisers extant. Unfortunately it is rather expensive. It dissolves in water freely, and is so concentrated in its action on leaf crops that a quarter of an ounce or half an ounce per gallon of soft water is generally ample. Its sale should be to those in charge of golf greens and tennis courts and greenhouse plants.

#### POTASH FERTILISERS

Some of the best potash fertilisers are kainit, chloride, sulphate, nitrate and phosphate. The specific use of most of these is to increase the quality and quantity of crops, and as root crops deserve special benefit, a factor chemists should specially point out. All potash fertilisers should be sold with a guarantee of the actual contained percentage of soluble potash, so that the horticulturist knows to some extent, at any rate, how much plant food he is supplying. Kainit is only suitable for winter application, so that packages containing it should advise its use from November onwards. Owing to the fact that it is somewhat absorbent of moisture, better results are obtained by selling it in tin canisters than in paper bags. Its application is best suited to root crops, such as parsnips, potatoes, carrots and beet, in light soils. Potassium



chloride, sometimes offered as silvine, is another fertiliser which should be pushed during the winter months. Pure samples are easy to obtain, although some commercial varieties contain much common salt. The usual dressing is one or two ounces per square yard. It should not be sold for potatoes, but should be offered to parsnip, carrot and beetroot growers for use on light soils. Potassium sulphate is the best known potash fertiliser, and should be in demand all the year round. It dissolves in water, and can either be used as a liquid plant food or may be scattered dry over the surface soil, say, at the rate of an ounce to the square yard, and hoed, watered or forked in. It is specially valuable as a fertiliser for potatoes, artichokes, carrots, parsnips, beetroot, turnips, and others with tuberous or tap roots, especially on light or medium soils. Potassium nitrate is a dual fertiliser, supplying not only potash, but soluble nitrogen. This fact should be pointed out to horticulturists who may grumble at the price asked for good samples of it. Potassium nitrate should only be pushed specially during the growing season. It is specially valuable to exhibitors. Potassium phosphate is another dual fertiliser. It is liable to absorb moisture from the atmosphere, and so should be sold in tins with tightly fitting lids. It should be offered to those who go in for the production of exhibition flowers (especially sweet peas), as experience has shown that it is not widely used by other growers owing to its relative high cost. As to directions for use, some exhibitors begin with a quarter-of-an-ounce per gallon of water, but gradually increase the amount, until almost an ounce in the same quantity of water is employed.

#### CALCIUM STIMULANTS

Among the best of these are cyanamide, various superphosphates, nitrate, phosphate and sulphate. Several of them are sparingly soluble in water. Their specific uses are variable, according to the acid with which they are combined. They should always be sold for use on soils deficient in lime, as some of them make up this soil defect. With regard to the sale of calcium cyanamide, this should be supplied in tins with tightly fitting lids, as in contact with a small quantity of moisture it readily is decomposed, and gives off ammonia. It is most suitable for application during the late winter and early spring, a fact which should be pointed out on every container, and it may be used dry at the rate of one or two ounces per square yard. It is not usual to employ it as a liquid manure owing to its sparing solubility in water, and to the fact that it is not immediately and completely decomposed when added to that menstruum. Chemists can offer this to all classes of plant growers with great advantage, but especially to those who go in for the cabbage family and salads. Those who work up the selling of fertilisers as an important sideline would do well to hold some of each of the superphosphates. Double superphosphate is far more popular abroad than it is in the British Isles, while basic superphosphate has been more widely used in some parts of the new world than it has in the old, especially on soils deficient in lime. Ordinary superphosphate is a very popular fertiliser, and is largely wanted throughout the British Isles, but does not give good results on sour lime-free land. Owing, however, to its high content of sparingly soluble gypsum, much more has to be used than is really necessary, and horticulturists obtain a mixture of several chemicals instead of one. Those who go in for the sale of superphosphate especially should be sure to note that it must be kept in a very dry place, otherwise it may revert, and the phosphates will become sparingly soluble. A warning should be printed on every bag not to mix it with nitrates or fertilisers which may contain free lime. Chemists should specially push the sale of this amongst pea and bean growers, as well as with those who raise carrots, parsnips and beetroot. Calcium nitrate, also known as Norwegian saltpetre, is exceptionally soluble in water. Chemists should be sure to sell it in tightly closed tins, and should push the sale of the pure chemical, rather than of the commercial mixture, which contains, as a rule, much slaked lime (added in order to reduce its deliquescent character). One ounce per gallon of water will be quite sufficient in most instances, but users should be warned not to mix it with ammonium sulphate. It

should mainly be offered to those who grow the cabbages and salads on soils low in lime. Calcium phosphate, or more correctly tri-calcium-orthophosphate, is a very valuable, though exceptionally slow-acting, plant stimulant, only suitable for use early in the winter. It is to all intents and purposes insoluble in hot or cold water, but is acted upon by soil water, and hence if used in the winter the phosphates it contains become more or less soluble by the time the plants need them. This chemical should be offered in relatively large quantities at a time, say twenty-eight or fifty-six pound bags, as heavy dressings of it can be given to sour soils. People who come in and ask for calcium phosphate in July should be told that no benefit will be obtained by using it at that period of the year, and they should be offered superphosphate instead. The normal phosphate may be sold for all classes of crops, including those grown under glass, except leaf crops, which are better without much phosphate. Calcium sulphate or gypsum, though it is sparingly soluble in water, is a more valuable fertiliser than is commonly recognised. It should be sold in paper-lined cardboard cartons, holding a definite quantity, say half-a-stone, and it is important to supply it in a finely pulverised condition. Chemists will find those who are in charge of golf greens and tennis courts are buyers of this. To some extent it acts as a soil sweetener on sour ground.

#### SOME SODIUM FERTILISERS

Among the most important of these are the nitrate, phosphate, carbonate, and the chloride. The specific uses of these are very similar to those of potash, while in some cases they are sold to growers who want to unlock the potash their soils already contain. The first of these is undoubtedly the most important. The salt is slightly deliquescent, and hence chemists should supply it in paper-lined cartons rather than in paper bags. It is not worth while putting it into tins. The directions should state that the fertiliser is to be used during the growing season, and for leaf crops only. The rate of application is one ounce to the gallon or one ounce per square yard. This fertiliser should not be sold to pea and bean growers. Sodium phosphate is more favoured by flower exhibitors than by general gardeners. Of the several forms sodium di-hydrogen phosphate is most in demand, although tri-sodium phosphate and disodium hydrogen phosphate are sometimes asked for. Chemists can also offer this fertiliser for room and greenhouse plants. With regard to sodium carbonate, this should be largely offered to onion and leek growers. It is also useful on sour ground. As to common salt, horticulturists will take half-a-hundredweight to two hundredweight at a time, as in addition to employing it as a fertiliser it is also used for pest-killing purposes. It is specially useful for the cabbage family and for celery and seakale. A mixture of common salt and sulphate of ammonia is a valuable celery fertiliser.

#### IRON SALTS

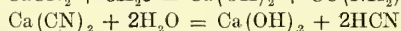
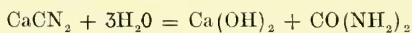
Horticulturists make use of these as intensifiers, i.e., to increase the colour of the foliage and of the blooms, especially of exhibition subjects. Ferrous sulphate, owing to the ready way in which this oxidises, should be sold in tins, or, if quantities are taken, it can be supplied in well-closed barrels. In use it should be dissolved in water which has been recently boiled, and the rate of application is from a quarter of an ounce per gallon upwards occasionally. In addition to selling this to exhibitors, it can be recommended for room and greenhouse plants. Ferrous ammonium sulphate is much less liable to oxidation, and hence horticulturists are gradually being interested in its use in place of ferrous sulphate. The amount of soluble nitrogen which it contains in addition to soluble iron is an advantage rather than otherwise, and as the pure salt contains exactly one-seventh of its own weight of metallic iron, a fact which should be pointed out when supplying it, horticulturists know what they are doing, and can gradually increase the quantity until the desired intensification of hue has taken place. Here again chemists can offer this to those in charge of room plants and greenhouse stock, while outdoor gardeners usually want it for their sweet peas.—E. T. ELLIS.



## Calcium Cyanide

This chemical is being largely used as a pest exterminator in agriculture and horticulture, particularly against rodents as an insecticide in glasshouses and as a soil fumigant. The following article deals with the manufacture and methods of application.

ACCORDING to Thorpe's "Dictionary of Applied Chemistry," Vol. II (1921), p. 467, "calcium cyanide has never been prepared in the pure state. An aqueous solution of lime in hydrocyanic acid decomposes completely into its constituents when boiled (Scheele). By evaporating such a solution *in vacuo*, Joannis obtained a crystalline compound,  $3\text{CaO}_2 \cdot \text{Ca}(\text{CN})_2 \cdot 15\text{H}_2\text{O}$ , which decomposed completely in a vacuum, leaving nothing but lime. Dry reactions, at high temperatures, yield calcium cyanamide, but no cyanide." Since the above date considerable research in connection with the manufacture and uses of calcium cyanide has been undertaken in the United States of America, and the salt is now available in the form of a dust, a coarse powder and granules. Curiously enough, it is in its weakness that lies its commercial value, the ease with which the gas is liberated having been mainly responsible for the chemical being frequently called "powdered hydrocyanic acid." One method of manufacture is to treat calcium carbide with hydrocyanic acid, when acetylene is evolved and calcium cyanide formed in the complete absence of water. The reaction can be considerably hastened if an amount of water equivalent to about 2 per cent. (calculated on carbide) is added, and a product is obtained having a cyanogen content of about 50 per cent., with only slight polymerisation. A commercial method of manufacture is by liquefying air, boiling off the nitrogen, which is then absorbed in white-hot powdered calcium carbide. This reaction forms calcium cyanamide,  $\text{CaCN}_2$ . The next step is the fusion in an electric furnace of the calcium cyanamide with sodium chloride, when the former is converted into cyanide by the addition of an extra carbon atom. The characteristics of the two salts are totally different:—



It will be seen that in the one case urea is formed, while in the other hydrocyanic acid is given off. Calcium cyanide is stable under ordinary conditions, provided it is protected from contact with the atmosphere. The factors which might affect the evolution of hydrocyanic acid from calcium cyanide can be divided into two groups—on the one hand there is the condition of the air to which the cyanide is exposed, including such factors as relative humidity and temperature, while the second group relates to the size of the particle and the thickness of the layer exposed. Experiments have shown that if the relative humidity of the atmosphere is above 35 per cent., the rate of evolution of hydrocyanic acid gas is independent of it, and the major portion of the gas is evolved in the first hour. If the relative humidity of the atmosphere is lower than 30 per cent., the evolution of the gas is retarded. The evolution of the gas is not materially affected by changes of temperature, provided there is sufficient moisture in the air to produce the reaction.

### SOME PRACTICAL APPLICATIONS

The ease with which hydrocyanic acid is liberated, combined with stability, renders the salt an excellent substitute for the liquid or gaseous acid in almost every one of its uses, while facility of application has rendered it possible for this "poison gas" to be employed as a killing agent in many connections where in the form of a liquid or as sodium cyanide it could never be used. In the following paragraphs particulars are given of some of the ways in which calcium cyanide is used as a pest destroyer:—

**Burrowing Animals:** Rats, voles, moles and rabbits can be exterminated by blowing calcium cyanide dust into their burrows with the aid of a dusting machine. The dust blown into one opening will emerge from others. As soon as it is found escaping the particular hole is

closed with a piece of turf or soil, pumping being continued until all the openings of the colony have been dealt with. In the case of field mice, the tube of the pumping machine should be placed in the burrow and its entrance closed with a turf (without compressing the tube). The dust is then blown in, the tube withdrawn, and the entrance completely sealed. In employing calcium cyanide against moles, attention should be paid to the fact that their activities of feeding and tunnelling occur at 8 a.m., 12 noon, and 4 p.m., and the introduction of the cyanide should be undertaken at these times. The method is to locate the main run, and with a trowel open sufficient of it to allow the insertion of the nozzle of the pump duster, at a distance of from ten to eighteen feet from the main molehill. The cyanide is then blown in until the dust has emerged from every run on the site.

**Glasshouse Fumigation:** As a control of various insect pests of glasshouses, fumigation with hydrocyanic acid has been employed for some years. The method generally adopted is to add potassium cyanide to diluted sulphuric acid, but the gas is evolved so quickly that if arrangements are not made for the operator to hurry out of the glasshouse he is in danger of inhaling the poisonous fumes. Fumigation is considerably simpler and safer by using calcium cyanide. The powder is simply evenly distributed along the walks in the evening, the house being made as airtight as possible before the operation. The correct dosage, which ranges from one-eighth to half-an-ounce of cyanide per 1,000 cubic feet of space, is determined by the plant to be treated, the pests to be controlled, and the time of year. It is advisable to start with a low dose and gradually increase according to the results obtained. If it is thought the house is rather dry, the ventilators should be closed an hour or two before fumigation commences, as this will provide atmospheric moisture from the transpiration of the plants. Experiments in the Lea Valley, in the Worthing district, in Guernsey and in Scotland have shown that white fly on tomatoes, aphids on chrysanthemums and the aphides which infest carnations, arums and roses can be successfully controlled by this method. Thrips and woodlice may also be destroyed by this means.

**Soil Fumigation:** One phase of insect control which has more or less baffled entomologists in the past has been the production of a simple remedy against soil-infesting pests, but the advent of calcium cyanide seems to have solved the difficulty. In the granular form it has been used against wireworms, leather-jackets, cutworms and other insects. The material is acted upon by the soil moisture and the lethal gas permeates the earth and kills the insects. The residue is lime and certain nitrogenous products which are available as plant food. In connection with wireworm destruction some interesting experiments have been lately carried out at Boston, Worthing, Cheshunt and Cottenham. It was found that while bran attracts wireworms most speedily, wheat and oats increase in attractiveness over a larger period and ultimately results exceed those of bran. The next point decided was regarding the most satisfactory distance apart to set the bait rows. Wheat was used as bait, and it was found that with rows four feet apart 85 per cent. of the available insects were attracted. This figure is sufficiently high to justify baiting as an adjunct to the use of a soil insecticide. In the experiments referred to it was found that when the bait is planted or sown two to three inches deep and the granular cyanide applied to the bait rows about a fortnight later at a depth of four inches the most satisfactory results are obtained. The cyanide is generally applied by means of a hand drill and the land lightly rolled after application so as to close the larger air spaces. A period of six or seven days should elapse before examination for kill and cultivation for cropping.

**Control of Wasps and Ants:** Calcium cyanide has proved a most efficient insecticide against ants and wasps. In the case of the former, the powder is poured into the nests through a funnel and the openings are then closed. In the case of wasps a small quantity should be placed well into the nest.

**Control of Woolly Aphis:** Recent investigations show that two or three puffs of calcium cyanide dust applied to each colony of aphides gives 80 to 90 per cent. kill. The



dnsting, which should be done by means of a small metal pump, should for preference be carried out on a still day, or if there is a slight breeze the dust should be applied in that direction. Time of day and temperature do not affect results. When the aerial form of the woolly aphid has been dealt with there still remains the root form, and for this granular cyanide has been found quite efficient. The soil beneath the tree is removed to a depth of six inches and to the extent of the spread of the branches. Holes eight to twelve inches deep and two feet apart are then made in concentric rings and a little cyanide is poured into each hole, which is then closed. A light sprinkling of the insecticide is then applied over the excavated area and the soil turned back into place. The amount of calcium cyanide which has been found satisfactory is two ounces per square yard..

## Organic Insecticides

In a recently issued report of researches carried out at the Rothamsted Experimental Station, it is stated by Sir E. J. Russell, D.Sc., F.R.S., that the insecticides now in use fall broadly into two main classes, the stomach and contact insecticides. The former are intended to poison the food of the insects and are sprayed on the leaves which they will eat. The latter are brought into contact with their systems in some other way, either as vapours, poisonous spray fluids, or dusts. The search for soil insecticides at Rothamsted, using the wireworm as the test insect, revealed a number of interesting compounds, among them naphthalene, but was checked by the difficulty that these compounds, though poisonous to the wireworms, serve as food for some of the soil organisms, and are consumed when put into the ground. No way round this difficulty has yet been found.

The work on spray insecticides has been more extensive. There are two kinds:—(1) Those used in winter, which must be strong enough to kill the eggs; fortunately, the trees are dormant, so that fairly potent materials can be used. (2) Those used in summer against the active stages of insects, some of which, such as the aphides, are easily killed. But the trees, being now in leaf, are sensitive to injury, and only those substances are useful which are fatal to the insect and harmless to the tree. Certain vegetable products completely satisfy this requirement. Nicotine is the best known, but it is expensive. Mr. Tattersfield and Mr. Gimingham have found other vegetable products at least as effective, especially certain tropical leguminous plants, used by the natives as fish poisons. *Derris elliptica*, the tuba root of Malay, and haiari, from British Guiana, have yielded a poisonous and a colourless, crystalline substance, tubatoxin, which is excessively poisonous to insects. Other tropical plants, *Tephrosia vogelii*, *T. toxicaria*, and *T. macropoda*, are also highly toxic to insects, but their poisonous principles have not yet been fully identified. Many synthetic chemical substances have been investigated, their advantage being that they can be prepared in a pure state under rigidly standardised conditions. They are studied in their proper chemical series, without regard to whether they are yet on the market, the purpose being to draw up a specification showing the types of compound required, to which a technical chemist could work. Although the work was begun only comparatively recently, it has had important practical results. *Derris*, *tephrosia*, and *haiari*, all obtainable from tropical parts of the Empire, are effective as summer washes, while a promising winter wash has been found in 3-5-dinitro-ortho-cresol which, even at the low concentration of 0.15 to 0.25 per cent., and whether free or as sodium salt, completely controlled bad infestations of hop damson aphid on plums and of currant aphid on black currants, while on apples it practically eliminated psylla and aphides, and greatly reduced winter moth; no damage was done to the trees. The only fungicide studied extensively has been sulphur, for use in the soil. Its action is erratic; it is sometimes effective, but not always; possibly the active agent is not the sulphur itself, but some compound formed in the soil. The subject is being further examined.

## German Nitrogen Production

DETAILED statistics of the production and commerce in German nitrogen have been made public for the first time since the formation of the syndicate in 1919. The estimated production is 580,000 metric tons of fixed nitrogen in the fertiliser year ended June 30, 1927. The figure, however, may cover a thirteen-month period from May 31, 1926, to June 30, 1927, as the syndicate fixed June 30 as the close of the fertiliser year instead of May 31. The production figures are as follows:—

GERMAN PRODUCTION OF FIXED NITROGEN, 1926-27

|  | Metric tons,<br>nitrogen-content |
|--|----------------------------------|
| Synthetic ammonium sulphate .. ..            | 355,000                          |
| By-product ammonium sulphate .. ..           | 60,000                           |
| Calcium cyanamide .. ..                      | 70,000                           |
| Calcium nitrate .. ..                        | 60,000                           |
| Sodium nitrate (synthetic Chilean saltpetre) | 15,000                           |
| Miscellaneous synthetic compounds* ..        | 20,000                           |
| Total .. ..                                  | 580,000                          |

\* Includes ammonium chloride, ammonium sulphate nitrate, urea, potash, ammonium nitrate, and nitrophoska.

### AMMONIUM SULPHATE THE CHIEF PRODUCT

The production of 355,000 tons of fixed nitrogen contained in ammonium sulphate is equivalent to approximately 1,775,000 tons of the fertiliser salt. In the period July 1926 to June 1927 inclusive, exports of ammonium sulphate amounted to 451,000 tons, while imports totalled less than 1,000 tons. Germany exported approximately 120,000 tons of ammonium sulphate to Japan, but the trade declined progressively in the first months of 1927. Other important customers for German ammonium sulphate are France, Belgium, the Netherlands, and Spain. The first two countries are receiving deliveries on reparations account. The ammonium sulphate exports, representing approximately 90,000 tons of fixed nitrogen, include an unknown amount of coke-plant by-product sulphate. Deducting the exports from the total German synthetic and by-product production of 415,000 tons, it is observed that Germany consumed roughly 325,000 tons of fixed nitrogen in ammonium sulphate.

### CALCIUM CYANAMIDE CONSUMED LOCALLY

The 70,000 tons of fixed nitrogen in calcium cyanamide produced in 1926-27 are accounted for chiefly by Mitteldeutsche Stickstoffwerke A.-G. Calculating at 17 per cent. nitrogen content in calcium cyanamide, this production is equivalent to 412,000 tons of bulk cyanamide. German exports of cyanamide during the period from July 1926 to June 1927 were 2,000 tons, shipped chiefly to France. Imports are insignificant.

### CALCIUM NITRATE AS SUBSTITUTE FOR CHILEAN NITRATE

Calcium nitrate production has been increased by the German Dye Trust during the past two years, and is a strong competitor of Chilean nitrate. Special production units have been erected at the Leunawerke and at Oppau. Germany exported in the twelve months ended in June 1927 almost 200,000 bulk tons of calcium nitrate, artificial urea, and miscellaneous artificial fertilisers.

### SODIUM NITRATE PRODUCTION EXPANDED

The production of 15,000 tons of fixed nitrogen in synthetic sodium nitrate, calculated on a 16 per cent. nitrogen content, approximates 93,750 tons of nitrate. In the period from July 1926 to June 1927 inclusive, German exports of sodium nitrate amounted to 44,302 tons, while imports reached 21,695 tons. Imports in the first six months of 1926 totalled 21,565 tons, but dwindled to slightly over 6,000 tons in the July-December period and rose to 15,733 tons bulk in the next half-year. A home production of 93,750 tons sodium nitrate and a net export of about 22,000 tons indicate that the German consumption of sodium nitrate, synthetic and natural, amounted to 71,750 tons.



## Spraying Plant and Cost

THE selection of suitable spraying outfit is complicated by lack of information as to actual output in practice from various types of spraying machines, whilst the number of trees per acre, their size, and the labour available enters into the problem. The following facts and figures are based upon information collected by Mr. J. Turnbull for the pamphlet of the Ministry of Agriculture on "Modern Fruit Spraying, and What it Costs" (Miscellaneous Publications, No. 58; price 6d.). They relate to apple plantations with 200 to 300 trees per acre, and of such size that their heads are just touching one another. The length of day was taken as 8½ hours, and spraying time refers usually to the use of a "medium" nozzle. The following table gives a fair idea of the possibilities of machines ranging from a knapsack hand pump to powerful stationary power outfit.

| Kind of outfit     | Pump    | No. of nozzles | Pressure | Galls. per day | Acres per day | No. of men | Gal. per day per man |
|--------------------|---------|----------------|----------|----------------|---------------|------------|----------------------|
| Knapsack           | Hand    | 1 (fine)       | 80       | 60             | 1             | 1          | 60                   |
|                    |         | 1 (med.)       | 80       | 80             | 1             | 1          | 80                   |
| Barrel ..          |         | 2 (med.)       | 80       | 240            | 1             | 3          | 80                   |
| Headland ..        |         | 2 (med.)       | 80       | 320            | 1             | 4          | 80                   |
|                    |         | 4 (med.)       | 80       | 500            | 1½            | —          | 70*                  |
| Portable (80 gal.) |         | 2 (fine)       | 80       | 240            | 4             | —          | 60†                  |
| Portable           | Power   | 4 (med.)       | 120      | 960            | 2             | 6          | 160                  |
|                    | 1½ h.p. | 8 (med.)       | 150      | 2,200          | 5             | 14         | 157†                 |
|                    | 3½ h.p. | 4 (med.)       | 275      | 1,600          | 3½            | 7          | 230                  |
|                    | 6 h.p.  | 8 (guns)       | 275      | 3,200          | 8             | 13         | 246                  |
| Stationary         | 6 h.p.  | 20 (guns)      | 150      | 3,400          | 11            | 22         | 155                  |
|                    | 16 h.p. |                |          |                |               |            |                      |

\* Labour includes boys or women. † Day of 7 hours only.

The use of power is accompanied with better spraying, and, of course, the work is much less tedious than hand pumping. A pressure of 275 lb. is needed to spray effectively the tops of half-standard trees when using the ordinary ½ in. outlet. Guns are less fatiguing than lances, and do twice as much work, but are obviously unsuitable when it is necessary to deliver a contact insecticide downwards into blossom trusses. As regards size of outfit, this cannot be regarded as adequate unless it will give one complete spraying within ten days (a pest such as capsid bug making this necessary). The amount of wash to spray an acre effectively may be taken as 500 gallons (at 150-lb. pressure) with a medium nozzle and 180 to 250 gallons (at 200-lb. pressure) with a fine nozzle (according to whether it is still or windy and wasteful of spray). The minimum amount of wash to spray trees should be calculated from the number of trees of a given size on each acre, the amount per tree in gallons being:—

| Diameter of tree (foliage) in feet | Tar-distillate wash or contact insecticide | Poison spray or fungicidal wash |
|------------------------------------|--|---------------------------------|
|                                    | Gallons                                    | Gallons                         |
| 9 .. .. .                          | 1  | 1                               |
| 12 .. .. .                         | 1½   | 1½                              |
| 15 .. .. .                         | 2½   | 1                               |
| 18 .. .. .                         | 4  | 1½                              |
| 21 .. .. .                         | 4½   | 2                               |
| 24 .. .. .                         | 6  | 3                               |
| 30 .. .. .                         | 10   | 4                               |
| 40 .. .. .                         | 20   | 8                               |

The type of outfit partly depends upon the price of manual labour, and power may be necessary where labourers are scarce. A powerful pump is necessary when trees are tall. Portable pumps are designed to carry to 20 gallons in the tank when moved by hand, and 40 to 80 gallons when drawn by a horse. Outfits holding 40 gallons are very unwieldy with hand labour, and lead to excessive waste of time. Horse-drawn sprayers are usually provided with two lances, but if more than one is used with the smaller hand-moved machine, too much time is taken up in returning to the headland for material. A machine of 10-20 gallons capacity for carrying by hand or wheeling

| Outfit                | No. of men | Area sprayed in 10 days |                           |
|-----------------------|------------|-------------------------|---------------------------|
|                       |            | Contact wash            | Poison spray or fungicide |
|                       |            | Acres                   | Acres                     |
| Knapsack .. ..        | 1          | —                       | 3                         |
| Barrow .. .. .        | 2          | 3½                      | 6                         |
| Headland .. ..        | 3          | 5                       | 9                         |
| 1½ h.p. with pipes .. | 5          | 9                       | 15                        |
| 4 h.p. with pipes ..  | 3          | 10                      | 16                        |
| 4 h.p. .. .. .        | 6          | 20                      | 30                        |
| 3½ h.p. .. .. .       | 6          | 20                      | 30                        |
| 6 h.p. .. .. .        | 8          | 30                      | 50                        |
| 3½ h.p. .. .. .       | 7          | 30                      | 50                        |
| 5 h.p. .. .. .        | 10         | 40                      | 60                        |
| 5 h.p. .. .. .        | 10         | 42                      | 60                        |
| 6 h.p. .. .. .        | 11         | 50                      | 80                        |
| 6 h.p. .. .. .        | 13         | 60                      | 100                       |

along costs £10 to £15, and the annual charge for using it is about 45s., plus occasional small repairs. Two men—one pumping and one with lance—will do about three acres of fully-grown trees with a contact wash, or five acres of fully-grown trees with a poison wash or fungicide in ten days (or twice as much bush fruit). A good pump for attaching to a barrel costs about £10. A horse-drawn machine of 40-80 gallons capacity with two lances costs from £25 to £35. The annual charge would be from £4 to £5, according to size. For illustrations of outputs makers' catalogues should be consulted. The price of spraying machines naturally varies with design and finish. The test of time as regards repairs and renewals can only settle which is the cheapest machine, and this is generally somewhat expensive at first cost. It is best to halve the nominal rating of the output in practice, both as to number of nozzles and output of spray per day. This gives the necessary margin for power and lost time in refilling tank, etc. With large outputs, extra tanks and filling pumps are requisite to save waste of time. The total cost of spraying fully-grown apple plantations in which the trees cover all the ground is given as examples, being hand machine for six acres and power plant for thirty acres. The plants are sprayed in winter (with a tar distillate wash) and twice in spring (with lime sulphur-lead arsenate).

| Six Acres                                     | Winter  | Spring spraying |         |
|---|---------|-----------------|---------|
|   |         | 1st.            | 2nd.    |
|   | £ s. d. | £ s. d.         | £ s. d. |
| 2,700 gall. at 7½ per cent.:                  |         |                 |         |
| 200 gall. tar dist. ..                        | 27 10 0 | —               | —       |
| 2 men 17 days .. ..                           | 10 4 0  | —               | —       |
| 1,200 gall.:                                  |         |                 |         |
| 40 gall. lime sulphur ..                      | —       | 3 0 0           | —       |
| 60 lb. lead arsenate ..                       | —       | 2 10 0          | —       |
| 2 men 10 days .. ..                           | —       | 6 0 0           | —       |
| 1,200 gall.:                                  |         |                 |         |
| 20 gall. lime sulphur ..                      | —       | —               | 1 10 0  |
| 60 lb. lead arsenate ..                       | —       | —               | 2 10 0  |
| 2 men 10 days .. ..                           | —       | —               | 6 0 0   |
| Use of barrow machine at £2 per annum .. .. . | 0 18 0  | 0 11 0          | 0 11 0  |
| Cost for 6 acres .. ..                        | 38 12 0 | 12 1 0          | 10 11 0 |
| per acre .. .. .                              | 6 8 8   | 2 0 2           | 1 15 6  |
| per tree 12 ft. diam. ..                      | 0 0 5   | 0 0 1½          | 0 0 1½  |
| 15 ft. .. .. .                                | 0 0 7½  | 0 0 2½          | 0 0 2   |
| 21 ft. .. .. .                                | 0 1 3½  | 0 0 5           | 0 0 4½  |

In a similar case with a larger acreage:—

| Thirty Acres                        | Winter  | Spring spraying |         |
|-------------------------------------|---------|-----------------|---------|
|                                     |         | 1st.            | 2nd.    |
|                                     | £ s. d. | £ s. d.         | £ s. d. |
| 13,500 gall. at 7½ per cent.:       |         |                 |         |
| 1,000 gall. tar dist. ..            | 135 0 0 | —               | —       |
| 5 men 15 days .. ..                 | 22 10 0 | —               | —       |
| 6,000 gall.:                        |         |                 |         |
| 200 gall. lime sulphur ..           | —       | 15 0 0          | —       |
| 300 lb. lead arsenate ..            | —       | 12 10 0         | —       |
| 5 men 10 days .. ..                 | —       | 15 0 0          | —       |
| 6,000 gall.:                        |         |                 |         |
| 100 gall. lime sulphur ..           | —       | —               | 7 10 0  |
| 300 lb. lead arsenate ..            | —       | —               | 12 10 0 |
| 5 men 10 days .. ..                 | —       | —               | 15 0 0  |
| Use of h.p. outfit at £39 per ann.: | 16 14 0 | 11 3 0          | 11 3 0  |
| Cost for 30 acres .. ..             | 174 4 0 | 53 13 0         | 46 3 0  |
| per acre .. .. .                    | 5 16 0  | 1 16 0          | 1 10 9  |
| per tree 12 ft. diam. ..            | 0 0 4½  | 0 0 1½          | 0 0 1½  |
| 15 ft. .. .. .                      | 0 0 7   | 0 0 2½          | 0 0 1½  |
| 21 ft. .. .. .                      | 0 1 2   | 0 0 4½          | 0 0 3½  |



## Insect Pests of the Empire

MUCH interesting information concerning the innumerable pests that work havoc among crops and animals throughout the British Empire was given recently in a "Times" trade supplement, from which we gather that a band of scientists is at work at Farnham Royal in Buckinghamshire endeavouring to provide new and effective means to enable the farmer, the forester and cattle-rearer to cope with the pests. The extent of the damage done may be generally indicated by stating that it is estimated that not less than a tenth of the world's crops raised annually is eaten by insects. If we take the tropics alone the figure must be increased to a fifth, and it should be borne in mind that nearly half the British Empire lies within the Tropical Zone. Such enormous depredations seem difficult to comprehend, yet the difficulty will be lessened if we remember that in Great Britain itself, where the problem is less serious than in some countries abroad, the yearly losses caused by pests is estimated at £30,000,000.

Canada has to face a yearly loss of £20,000,000 due to field crop pests, and, in addition, between 1914 and 1921, the spruce bud worm did damage to the extent of £7,000,000 among spruce and fir trees. Australia loses every year sheep worth £2,000,000 through the ravages of the blow-fly, while the cane grub takes toll of sugar cane in Queensland to the extent of £100,000. Enormous losses are caused in South Africa by the codling moth. In Egypt the pink boll-worm caused damage in 1921 amounting to £10,000,000 while in tropical America, north of the equator (including the West Indies), the damage done every year by sugar-cane moth borers reaches a total of £2,000,000. These rough figures will convey an idea of the gravity of the problem. Truth to tell, it has been largely caused by man himself, for it is he who, in carrying civilisation to the uttermost corners of the earth, has disturbed the fine balance of nature, and all that it means to insect species. Before man comes life is in a state of equilibrium. Insects and parasites exist together, and the preying of species upon each other ensures that none reaches a position of absolute ascendancy. Along comes the pioneering farmer, who clears away the limitless variety of vegetation and substitutes a single crop. Insects which cannot live on that crop depart, leaving those which can to dwell in what, with their departure, has become a paradise without enemies. Perhaps the pioneer, looking for the best means of gaining a livelihood, decides to grow fruit or rear cattle. He introduces new trees, cattle, and other forms of life previously unknown to the country, and with them come, subtly and unseen, the insects which thrive on them. It is in truth an ideal world for these pests, for more probably than not they manage to arrive without any of those troublesome parasites which prey upon them in their natural home and keep them in check.

At present farmers and others in the Dominions rely chiefly upon chemical means of fighting the great army of pests. Spraying is resorted to on a large scale, but it is a by no means perfect method, and there are certain crops to which it is impossible to apply this treatment. In recent years it has become more and more clear that the only satisfactory method is that of biological control, which, in a word, means going back to the lesson of Nature itself and supplying to the countries which are pest-ridden the parasites whose absence has given rise to the problem.

The Imperial Bureau of Entomology, the headquarters of which are in London, has been conducting experiments for some time, but it is only recently that a grant from the Empire Marketing Board has made it possible for work to be undertaken on serious lines. The Board has given this financial assistance, first, because damage caused by pests directly affects the food supplies we receive from overseas, and, secondly, because several Dominion Governments have themselves made it clear that they regard the Imperial Bureau's work as of great importance and are anxious to have supplies of parasites at the earliest possible moment. Operations at Farnham Royal began recently under the direction of Dr. Guy Marshall and Dr. Neave, of the Imperial Bureau of Entomology, and though they are not yet fully developed a good deal has been done. In

a great number of cases the parasites of the various pests are well known, and the task at the new "Zoo" is merely to breed and export them. One uses the word "merely," but it is not to be supposed that all is simplicity itself, for there are many difficulties, not least of which is the danger of sending out to the Dominions parasites which are not free of hyper-parasites. The latter would, of course, gradually negative everything that had been done. It is also of the utmost importance to export only those parasites which will confine themselves to the pest to be eradicated; otherwise the Dominions would rid themselves of one problem only to be faced by another equally or more serious.

### INSECTORIES

The breeding of the parasites is carried out in specially constructed insectories. These consist of large cages framed in teak and covered at the sides with copper gauze so fine that no insect life can either enter or escape. In order to admit the ultra-violet rays of the sun, so beloved by pests and parasites alike, the roofs are of vitreous glass. In one of these cages one observes a number of bushes thickly infested with the woolly aphis, which does such enormous damage to fruit trees. Here the appropriate parasite has been introduced, and it is left to do its work by laying its eggs in the larva of the aphis and destroying it. At a suitable stage twigs containing the chrysalis of the parasite will be detached and sent to the areas abroad where they are needed. In another cage the parasite of the scale—an insect that operates on maple and other trees, sucking the juice and destroying them—is being cultivated. In a third and much larger cage, the wood-borer and the blow-fly are being dealt with. A small glass case contains a number of tree logs infested by the wood-borer. Its parasite, quite exceptionally, is a large, easily discerned individual, possessing a long protrusion like a tail. This contains a thin tube of such penetrating power that the insect is able to bore through the hard wood of the tree with ease. Having reached the grub inside it lays its eggs there, and in due course a new generation of parasites instead of wood-borers is reared. Another glass case contains carcasses of animals needed for blow-fly experiments. Supplies of the parasites of this pest have already been exported to affected areas.

### WORK IN THE LABORATORY

The mansion itself has been turned into a laboratory, in which microscopic and other work is done. It is necessary to make sure that the parasites, when collected, are not only free from their own natural enemies but that they are the correct species. In some instances every parasite, however minute, has to be caught and examined under a powerful microscope before being passed as authentic. For the first of these purposes an ingenious apparatus is brought into use. It consists of a wooden case with holes at the top opening into glass tubes. As the parasites, which are on trays, come to life they make for the tubes, which afford the only means of obtaining the light they love, and there they are trapped and in due course placed under a microscope. There is a room specially fitted up for the delicate operations of insect photography, and another is prepared for the installation of artificial sunlight apparatus in order to provide parasites with the maximum of sunlight. That is the outline of what has been done up to the present at this remarkable "Zoo," but there is still a considerable amount of work ahead. Earwigs do an enormous amount of damage in some of the Dominions, and it is intended to begin very soon the breeding of the parasite which will keep them in check. The codling moth, which ruins millions of apples in Australia, New Zealand, Canada and South Africa, is to be the subject of research. The tsetse-fly, the wheat stem sawfly, the corn-borer, and the lucerne flea are other pests which are to be taken in hand at the earliest possible moment. Even when parasites have been bred and collected there is still the problem of successfully transporting them across thousands of miles of ocean and delivering them in their new home at the right period, and under the right conditions—a task requiring much study.



## Sulphur Insecticides

SULPHUR has long been recognised as a valuable agent for the control of many pests and diseases of plants. It has generally been used as a dust, composed either of pure sulphur or combined with various inert, additive or extending materials, or in the form of various liquid combinations, such as lime-sulphur and polysulphides. Special interest, therefore, centres in the development of commercial colloidal sulphur, which gives in effect solutions of sulphur without caustic action, and of activity many times in excess of the powdered sulphur preparations hitherto available. This colloidal sulphur is marketed as a concentrate to be used by diluting with relatively large volumes of water and applied by means of sprays or dips. It has been prepared in the form of pastes and powders which, when dispersed in most ordinary waters, produce milk-like solutions that persist almost indefinitely. For horticultural use these colloidal sulphur concentrates are activated by special means so as to give greatly enhanced bactericidal, fungicidal and insecticidal properties. The dilutions used vary over a wide range. Highly promising results have been obtained for the control of various moulds, rusts, smuts and mildews, red spider, various mites (colloidal sulphur seems to have definite specific action against acari of many species), nematodes, root worms and many varieties of insects. These preparations have been developed by a British manufacturer, and the following particulars are of interest: Concentrated colloidal sulphur jelly contains an average of 24 per cent. pure sulphur. At ordinary temperatures this preparation is a jelly and will not disperse in cold water except with difficulty, therefore it should be first thoroughly mixed with 3.5 volumes of warm water (not hotter than the hand will bear), and then with the necessary additional amount of cold water to give the final dilution required. Colloidal sulphur contact insecticide is a jelly or thick paste at ordinary temperatures, and if the diluting water to be used is cold it will not disperse; therefore, the preparation should first be diluted with 5-10 volumes of warm water (not hotter than the hand will bear), stirred thoroughly, and then the necessary cold water added to give the final dilution required. The extent of dilution will depend upon the insect or other pest to be treated. For many uses it will be found that no spreader or wetter is required with either of these preparations. If, however, the diluted material does not wet satisfactorily certain types of waxy leaves, a small quantity of neutral soft soap will remedy the difficulty.

## Recent Patents

**Abstracts of specifications of recently-granted patents for inventions.** The complete specification (1s. each including postage) of any British patent can be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, on quoting the name of the patentee and the number of the patent.

**2-Chloropyridine.**—A process for preparing 2-chloropyridine by chlorinating N-alkyl-2-pyridones by slowly passing in phosgene, treating the product with caustic soda and subjecting to steam distillation. (Deutsche Gold und Silber Scheideanstalt, Frankfurt. 281,650.)

**Shaving Composition.**—A product for protecting the skin against irritation by the razor composed of a mixture of olive oil 30, wool fat 10, paraffin 8, starch 20, talc 20, glycerin 1, perfume 0.3, gelatin 0.7, water 10, which can be shaped into sticks and applied to the skin previous to shaving. (G. L. Regard, Geneva. 260,268.)

**Unsymmetrical Arylarseno Compounds.**—Improvements in process of manufacture of arylarseno compounds containing a N-aryl-amino-acid-amide grouping and another otherwise constituted aryl nucleus, with special reference to compounds wherein one-half of the molecule contains a N-phenyl-glycin-amide grouping and the other an oxy-amino-phenyl grouping, consisting in condensing together equimolecular proportions of N-aryl-amino-acid-amide with a hydroxy-amino-aryl-arsenic compound or mono-N-acyl derivative thereof. (May & Baker, Ltd., Battersea. 270,091.)

## Importers and Dealers in Surgical Instruments and Allied Goods

SOME time ago the Surgical Instrument Manufacturers' Association applied to the Board of Trade for an Order under the Merchandise Marks Act, 1926, to make compulsory the marking, by stamping, at the time of importation, all foreign-made surgical, medical, dental and veterinary instruments and appliances and all hospital furniture. The hearing of this case was held recently by the Board of Trade Standing Committee, with Sir Hubert Llewellyn Smith as chairman. The other members of the Committee were Mr. G. N. Barnes and Mr. Davenport. The opposition was representative of a number of the leading importers and traders, but it seems the presentation of their case suffered to no little extent through having been very hastily prepared and through their having no properly organised Trade Association in a position to voice with authority the general opinion of all concerned. Having learned the lesson of the danger to their interests of not being organised, the traders in these goods are now forming a Trade Association. It is realised that if the applicants succeed to the full extent of their demands, it will mean the marking, by stamping on the goods themselves, with an indication of origin. This marking would be enforced at the time of importation, but stocks held by dealers, wholesale druggist sundries houses and by retail chemists would also have to be stamped. Further, all literature, such as catalogues, advertisement blocks, etc., would have to be amended to indicate the origin of the goods. When it is recalled that in these trades there are some thousands of articles, the position that may have to be met (not only by dealers, but by all concerned down to the retail chemist and druggist) is not to be envied. Again, many of the articles are of such a nature that it will be very difficult, if not impossible, to mark them, and in other instances it will deface them and make them more or less useless. In not a few articles the cost of stamping, without allowance for breakages, will be more than that of the article itself.

However, the Standing Committee have not yet made their report, but when this has been presented to the Board of Trade, the new Association will have plenty of work to do should a Marking Order be granted. There will have to be prolonged negotiations with the Board of Trade to discuss what articles are to be marked and how they are to be marked, and some time must elapse before the whole matter is settled.

A representative organisation of the importers and dealers will be helpful in these matters, both to the Board of Trade and to the commercial interests concerned, as regards making representations to the department and for instructing those connected with these trades how to proceed. A circular letter is being despatched to all the firms interested, inviting them to a meeting to be held on April 18, at 2.30 p.m., at the offices of the British Chemical and Dyestuffs Traders' Association, Ltd., 80 Fenchurch Street, London, E.C.3. when the proposal to form an association of importers, wholesale dealers, druggists' sundriesmen and retailers of surgical, medical, dental and veterinary instruments and appliances and hospital furniture will be moved and a chairman and committee and the usual officers elected. Mr. O. F. C. Bromfield, of the Chemical Trade Association, is acting as secretary *pro tem*. Anyone interested is invited to apply for further particulars to 80 Fenchurch Street, E.C.3.

**EFFLUENT FROM BEET-SUGAR FACTORIES.**—A law case, the hearing of which commenced at Nottingham in February, was settled on March 3 in favour of the defendants, the proprietors of a beet-sugar factory, who had been summoned for polluting the Trent. Expert witnesses appeared to be in substantial agreement as to the inefficiency of known processes for purifying the effluent of beet-sugar factories. Mr. W. Lincoln Sutton said that hundreds of methods were either stillborn or were being rejected at once if used.



## Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling, packing, etc. Qualities of chemicals, drugs, essential and fixed oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42, Cannon Street, E.C.4, March 29

BUSINESS in pharmaceutical chemicals continues moderately active, with a few minor price alterations. Hexamine, caffeine and Dutch milk-sugar are offered at cheaper rates. B.P. creosote and chloral hydrate are firmer; ferri et quin, cit. is  $\frac{1}{2}$ d. per oz. higher. Crude drugs meet with a slow sale. Senega is 1d. per lb. dearer following a further advance in the U.S. Good squill is practically unobtainable on spot, and none is expected before June or July. Ginger is still in upward tendency, especially West African. Zanzibar cloves are firmer. Cod-liver oil is quiet, but prices are very firm. Among the industrial chemicals there is little change to note in prices, except a revision in Convention quotations for red and white lead. Sodium and potassium chlorate are steadier. In the fixed oil section, business continues quiet with few changes in quoted prices. Palm oils are steadier, while some grades of cotton are cheaper; ground nut, rape and Hankow wood oils are easier. Linseed and turpentine are practically unchanged. Other changes include an advance in glucose, maize starch powder and crystals, and American dextrin.

| Higher  | Firmer   | Easier  | Lower  |
|---|--|---|--|
| Dextrin (Amer.)<br>Farina (Dutch)<br>Ferri et quin. cit.<br>(B.P.)<br>Geranium oils<br>Ginger (W. Afr.)<br>Glucose<br>Maize starch<br>(powder and<br>cryst.)<br>Olive oil<br>Senega<br>Squill<br>White lead | Citronella oil<br>(Cey.)<br>Cloves<br>Creosote (B.P.)<br>Peppermint oils<br>Pitch<br><br>Steadier<br><br>Chloral hydrate<br>Palm oils<br>Potassium<br>chlorate<br>Sodium<br>chlorate | Cotton oils<br>Ground-nut oil<br>Rape oil<br>Wood oil | Bergamot oil<br>Caffeine<br>Hexamine<br>Lubricating oils<br>Milk-sugar<br>(Dutch)<br>Musk xylol<br>Pepper<br>Vanilla<br>Vanillin |

### Cablegram

BERGEN, March 28.—The catch of cod since the opening of the season amounts to 28,500,000, against 35,000,000 at the corresponding period of last year, and the yield of steam-refined non-freezing oil is 24,580 hectolitres, against 41,819 hectolitres at the same period last year. Market is quiet at 179s. per barrel, c.i.f., for finest new steam-refined non-freezing oil.

### Crude Drugs, etc.

AGAR-AGAR is steady, Kobe No. 1 offering at 3s. 9d. per lb. on the spot, and to arrive sellers quote 3s. 5d. per lb. c.i.f.

ANTIMONY.—Chinese regulus is irregular. Holders on the spot require at least £43, but considerably cheaper offers have made for shipment down to £37 c.i.f., and there is only little interest in that direction. English high-grade remains at £59 10s. to £60, with good brands obtainable at £57 to £58. Chinese crude is well held at £35 on the spot, and orders for shipment are negotiable at about £31 c.i.f.

CADE OIL is quoted at 1s. 5d. per lb. in cwt. lots.

CADMIUM is firm, and there is a good run of business in Australian on the basis of 2s. to 2s. 1d. per lb. according to quantity. Continental or American is quoted at higher figures which, however, are quite nominal.

CAMPOR (REFINED).—Japanese  $2\frac{1}{2}$ -lb. slabs are quiet at 2s.  $7\frac{1}{2}$ d. per lb. on the spot, and for March-April shipment sellers quote 2s.  $3\frac{1}{2}$ d. per lb. c.i.f.

CARDAMOMS.—An auction of 77 cases Indian and Ceylon was held to-day (Thursday).

CINCHONA.—At auction at Amsterdam on March 21, 783 packages (481 bales and 302 cases) Java pharmaceutical bark offered weighing 35,215 kilos. and containing the equivalent of 855 kilos. quinine sulphate. Of this quantity 141 bales and 226 cases weighing 15,719 kilos. and containing the equivalent of 387 kilos. quinine sulphate sold at from 37 cents to 110 cents per half-kilo.

CLOVES.—Zanzibar are firmer on the week but quiet at from  $7\frac{1}{2}$ d. to 8d. per lb. on the spot, and for April-May shipment sellers quote  $7\frac{1}{2}$ d. per lb. c.i.f. delivered weight. The landings during the week ended March 24 were 190, and the deliveries 237, leaving a stock of 12,062 bales, against 9,296 in 1927 and 18,363 in 1926. The landings of Zanzibar during the period January 1 to March 24, 1928, were 5,756 bales, against 6,423 for 1927, and the deliveries 3,201, against 4,730 in 1927.

COCOA BUTTER.—Prime English C.F.R. is 1s.  $8\frac{3}{4}$ d. per lb., and other makes 1s.  $8\frac{1}{4}$ d. in not less than one-ton lots.

COD-LIVER OIL still remains very firm, and the deficiency in production continues, being 17,239 hectolitres less than last year, or, say, 40 per cent. Prices vary considerably at from 175s. to 185s. per barrel c.i.f. It would appear that much of the oil sold earlier in the year at lower prices still remains to be covered.

BERGEN, March 26.—The codfishery at Lofoten continues favourable also during the past week. However, the yield of cod-liver oil has been reduced on account of the increasing leanness of the cod. The total output of all the Norwegian codfisheries, compared with that of the previous years is as follows:—

| To                | Catch<br>of cod. | Yield of<br>steam-refined<br>cod liver oil. | Livers for<br>crude oils. |
|-------------------|------------------|---|---------------------------|
| March 17, 1928 .. | 21,500,000       | 19,323 hectol.                              | 4,285 hectol.             |
| " 19, 1927 ..     | 29,100,000       | 35,105 "                                    | 2,616 "                   |
| " 20, 1926 ..     | 20,900,000       | 33,718 "                                    | 3,986 "                   |
| " 17, 1925 ..     | 16,800,000       | 32,081 "                                    | 5,071 "                   |
| " 15, 1924 ..     | 13,200,000       | 29,214 "                                    | 5,206 "                   |

The market is firm with a rising tendency. The official quotation for non-freezing steam-refined quality is 182s. per barrel, c.i.f. London, with some sellers asking higher prices.

CORN PRODUCTS, ETC.—Guaranteed water-white glucose (corn syrup) has advanced 9d. per cwt. to 22s. 6d. for March-April delivery, ex store, London, duty paid. Dutch maize starch powder (cornflour) has also advanced 9d. per cwt. to 16s. 3d. on the spot. American for March-April delivery is also 16s. 3d. per cwt., ex store London. Pearl starch for March-April shipment is 15s. 9d. ex store, London. Dutch maize starch crystals is 22s. on the spot, and American for March-April delivery is 20s. 9d. ex store, London. Dutch dextrin is quoted at 22s. to 25s. per cwt. on the spot as to quality. American canary for March-April delivery is 19s.  $7\frac{1}{2}$ d. per cwt. White for March-April delivery is 19s.  $4\frac{1}{2}$ d., ex store, London. Dutch farina is 6d. per cwt. higher at 17s. 3d. per cwt. on the spot, and 16s. 3d. per cwt. f.o.b.

GINGER continues to advance, the spot price of West African being 44s. to 45s. per cwt.; fair sound washed rough Cochin is 60s., and wormy 55s. per cwt. Japanese is 60s., and for Jamaica from 70s. to 110s. per cwt. is quoted for small to bold.

GUM ACACIA.—Natural Kordofan hashab is quoted on the spot at 41s. per cwt., and to arrive 37s. c.i.f. is quoted. Cleaned is 43s. on the spot, and to arrive 39s. per cwt. c.i.f. is quoted.

HEN YOLK is quiet, with Chinese dried yolk offering at 1s. 9d. per lb. on the spot and at 1s.  $8\frac{1}{2}$ d. c.i.f. for April-May shipment. Prime Chinese albumen is 2s.  $3\frac{1}{2}$ d. per lb. on the spot, and 2s. 3d. c.i.f. for April-May shipment.

LABDANUM RESIN is offered at from 2s. to 2s. 3d. per lb. c.i.f. as to quality.

LYCOPDIUM.—For treble-sifted 4s. per lb. is quoted on the spot.

MENTHOL remains dull of sale at 15s. 6d. per lb. for Kobayashi-Suzuki on the spot, and for March-April shipment 14s.  $10\frac{1}{2}$ d. per lb. c.i.f. is quoted.

MERCURY has not been quite so active, but the firmness has been fully maintained, while there is but little actually offering. There is a steady demand for small lots, which have been selling on the spot less the customary discount at up to £21 10s. per bottle. Current



quotations are £22 5s. to £22 10s. Stocks having been materially reduced of late, the position seems likely to continue light. There has been no change in the terms quoted by firsthands for shipment from Spain or Italy which remain at about £21 10s. f.o.b. The New York market is quoted firm at about \$124 duty paid.

**OLIBANUM.**—The lower grades (garblings and siftings) are very scarce on the spot, and in view of the fact that previous shipments of siftings proved heavily adulterated, buyers are chary of purchasing forward. Drop varies in price from 90s. up to 120s. for good pale.

**PEPPER** has been quiet and easier; fair black Singapore is offered at 1s. 6½d. per lb. on the spot. March-May and April-June shipment is 1s. 5½d. c.i.f. Lampong is 1s. 5½d. spot; to arrive, the sales include May-July at 1s. 4½d. to 1s. 4¼d., and August-October at 1s. 3¼d. to 1s. 3½d. c.i.f. Tellicherry is 1s. 6¾d. spot, and April-May shipment is 172s. c.i.f. Aleppy is 1s. 6½d. spot and 170s. c.i.f. for April-May shipment. White Muntok is 2s. 3½d. spot.

**PIMENTO** is steady at 9d. per lb. on the spot, and for April-May shipment 80s. per cwt. c.i.f. is quoted.

**RUBBER** is fully steady and about ¼d. per lb. better on the week. During the past few days there has been very little activity, but prices on the whole have kept quite firm. It would appear that the market generally is at a standstill pending the Government announcement on the restriction question, which is expected to take place at any moment. Deliveries last week were exceedingly heavy, and the largest for many months past, viz., 3,722 tons, whilst landings totalled 2,333 tons, resulting in a decrease in the stocks of 1,389 tons. The London stock now stands at 59,644 tons, against 63,167 tons at the corresponding period last year. Quotations (Wednesday, 5 p.m.) :—No. 1 standard ribbed smoked sheet, spot and March, 1s. 1d.; April-June, 1s. 1¼d.; July-September, 1s. 1½d. per lb.

**SAFFRON.**—Valencia is firm at from 53s. to 57s. per lb. as to quality.

**SEEDS.**—There has been very little change in conditions over the past week; business continues limited and prices remain about the same. **ANISE.**—Spanish, 50s.; Levant, 34s.; Russian, 32s. **CANARY.**—Mazagan is 14s. 6d. on the spot, and Saffi 14s. **CUMIN.**—Maltese is 58s. spot; Morocco, 55s.; and forward shipment, 50s. c.i.f. **CORIANDER.**—Morocco remains at 47s. 6d. spot, and business has been done in new crop at 20s. to 21s. per cwt. c.i.f. for June-July shipment, and Russian is 39s. spot. **FENUGREEK.**—Morocco is 16s. 6d. to 17s. spot. **HEMP.**—Manchurian is 16s. 6d. and Chilean 17s. 6d. **LINSEED** is quiet; Mazagan is 20s. 6d. spot. **MUSTARD.**—English is 27s. per cwt. on the spot.

**CARAWAY** is firm at 38s. per cwt. c.i.f. for Dutch for prompt shipment.

**SENEGA.**—The spot price has advanced to 5s. 7d. per lb. following a rise of 2 c. on the other side.

**SHYLLAC** is steady on spot, the value of usual standard orange TN quality being 185s. per cwt.; fine orange is 220s. to 300s.; pure button, 230s.; and AC cakey, 195s. The sales of TN include March-April shipment at 170s.; April-May at 158s. to 165s.; and May-June at 157s. to 160s. For delivery, the sales include May at 170s. to 177s.; August, 162s. to 169s. to 167s.

**SQUILL.**—Good white on the spot is only obtainable in limited quantity. Single bags offering at 85s. per cwt. Brown is obtainable at 22s. 6d. Further supplies are not expected before June-July.

**VANILLA.**—At auction a fair supply offered and met with a slow sale at rather lower prices. Of 244 tins Seychelles offered, part sold, comprising good firsts 7½ to 8 in., 8s.; 6½ to 7½ in., 7s. to 8s.; 5 to 6 in., 6s. 6d. to 6s. 9d.; 3½ to 5½ in., 5s. 3d. to 6s.; seconds, 6½ to 7½ in., 6s. to 6s. 3d.; 4 to 5½ in., 4s. 9d. to 5s. 3d.; firsts split, 6s. 6d.; brown to fair split, 3s. to 5s. Of 80 tins Madagascar offered, part sold, good firsts, 6½ to 7½ in., 8s. to 8s. 3d.; 5 to 6½ in., 7s. 3d. to 7s. 6d.; 4½ to 5 in., 6s. to 6s. 6d.; fair crystallised firsts, 6 to 7½ in., 6s. 6d., to 6s. 9d.; 4½ to 5½ in., 6s.; foxy seconds, 5 to 6½ in., 4s. 9d. to 5s.; split, 4s. 9d. to 5s. 6d. per lb.

**WAX (VEGETABLE).**—Japanese is quiet at 85s. per cwt. on the spot, and for March-April shipment sellers quote 80s. per cwt. c.i.f.

## Essential Oils

**BUSINESS** continues to be of a spasmodic, hand-to-mouth nature, and the expected improvement is not likely to materialise until after Easter. The situation with regard to cassia is complicated by a report that the method of testing followed by the Customs Department is not beyond reproach. Geranium oils are higher, Ceylon citronella and the peppermints are firmer, while bergamot is still lower and must be about rock bottom now.

**ANISE (STAR).**—"Red Ship" is unchanged and steady at 2s. 5d. per lb. on the spot, and 2s. 1½d. to 2s. 2d. per lb. c.i.f.

**BERGAMOT** is again lower over the week, and is now quoted at figures round about 21s. per lb. c.i.f. On the spot prices range from 21s. to 22s. per lb. for 37 to 38 per cent. l.a.

**CASSIA.**—Sales of the genuine have been made at 7s. 3d. per lb., and the scarcity is still apparent. A well-known firm of distillers have experimented in their laboratory and proved the test at present followed by the London Customs Authority to be unreliable. A definitely genuine oil, distilled by the firm in question under special control, showed the presence of a percentage of alcohol when examined by the present method. Unfortunately there is at present no better alternative test to suggest, but it is regrettable that all this trouble should result on what is obviously a weak form of analysis. The forward position is unaltered.

**CEDARWOOD** is unchanged at 1s. 2½d. in drums, and 1s. 4½d. in cases for spot supplies, with forward quotations at 1s. 1d. to 1s. 2d. per lb. c.i.f.

**CITRONELLA.**—Java is a little firmer for shipment at 1s. 7½d. per lb. c.i.f. from May onwards for 80 to 85 per cent geraniol. On the spot the value is from 1s. 7d. to 1s. 8d. per lb. Ceylon is still scarce on the spot, and firm at 1s. 6d. per lb., with forward positions about the same figure.

**GERANIUM.**—Bourbon is dearer on the spot at 15s. per lb., with nominal quotations of 15s. 6d. c.i.f. at the source. There is, however, some available at 14s. 1d. at the wharf in Marseilles. Algerian has advanced to 12s. 6d. per lb. on the spot, and from 12s. to 12s. 3d. c.i.f.

**LEMON** is steady and firm at 8s. 3d. to 8s. 6d. per lb. c.i.f., and 8s. 6d. to 8s. 9d. per lb. on the spot for Sicilian.

**LINALOE.**—Mexican is quoted at 11s. 6d. to 12s. per lb. on the spot.

**MANDARIN** is quoted at 21s. 6d. c.i.f., and 22s. per lb. on the spot.

**ORANGE** continues firm and in fair demand. Sicilian sweet stands at 11s. 3d. to 11s. 6d. on the spot or c.i.f. Sicilian bitter is quoted at 11s. 5d. per lb. c.i.f. Californian still stands at 9s. 6d., and West Indian at 10s. per lb. A hand-pressed Spanish oil is quoted at 9s. 10d. per lb. c.i.f.

**PATCHOULI.**—Singapore is steady on the spot at 27s. 6d. per lb.

**PENNYROYAL.**—Spanish is quoted at 3s. 9d. c.i.f., and from 4s. 3d. to 4s. 6d. per lb. on the spot, according to quantity.

**PEPPERMINT.**—Japanese demethylised remains dull of sale at 6s. 3d. per lb. on the spot for Kobayashi-Suzuki, but forward positions are firmer at 5s. 10½d. c.i.f. for January-March shipment. The natural American tin oil is firm at from 14s. 3d. to 15s. spot and 13s. 6d. to 14s. per lb. c.i.f. as to seller. The American redistilled is quoted at 16s. 8d. on the spot.

**PETITGRAIN** is steady at 6s. 6d. per lb. on the spot and 6s. 3d. c.i.f.

**ROSEMARY.**—A good quality Spanish is obtainable at 2s. 3d. on the spot, and is quoted at 2s. per lb. c.i.f.

**ROSEWOOD (BOIS DE ROSE).**—Cayenne is steady at 7s. 6d. per lb. on the spot. The Brazilian is slightly weaker at 6s. 6d. to 6s. 9d. on the spot, according to quantity.

**SAGE** is quoted at 2s. 3d. spot and 2s. 2d. per lb. c.i.f. for Spanish.

**SASSAFRAS.**—Natural American is quoted at 4s. 3d. on the spot and 4s. per lb. c.i.f.

**SPERMINT** is still scarce on the spot and quoted at 20s. per lb. and upwards. The position forward is 19s. 6d. c.i.f.

**SPIKE.**—Spanish is quoted at 3s. 4d. per lb. in drums on the spot, and 3s. 6d. for smaller lots. Many distress parcels are said to be selling at the source at prices round about 3s. 1d., although 3s. 3d. per lb. c.i.f. is a good price for shipment.

**WORMSEED (CHENOPODIUM)** is unchanged at 14s. 9d. on the spot, and 14s. 3d. per lb. c.i.f.

The following arrivals have taken place from the countries indicated during the period March 21 to March 27 (inclusive):—Almond (Fr.), 32 cs.; anise (Ch.), 20 cs.; bergamot (It.) 21 cs., (U.S.) 4 cs., (Jv.) 14 cs.; cajuput (Holl.), 3 cs.; camphor (Ch.), 28 cs.; cananga (Jv.), 1 dm.; caraway (Holl.), 4 cs.; cinnamon (Cey.), 1 cs.; citronella (Cey.) 8 cs., 2 dm., (Jv.) 3 dm.; copaiba (U.S.), 1 cs.; croton (U.S.), 4 cs.; eucalyptus (Sp.) 10 cs., (Aust.) 37 cs.; fennel (Ger.), 2 cs.; geranium (Fr.), 14 dm.; laurel (It.),



10 es.; lavender (Sp.) 4 dm., 11 es., (Holl.) 1 cs., (Fr.) 5 cs., 2 dm.; lemon (It.) 403 cs., (U.S.) 9 cs.; lime (B.W.I.) 44 cs., (U.S.) 6 cs.; orange (It.) 33 cs., (U.S.) 1 cs., (B.W.I.) 10 cs.; palmarosa (Br. Ind.) 1 cs.; pennyroyal (Sp.), 1 cs.; peppermint (U.S.) 5 cs., (Fr.) 41 cs., (Jp.) 74 cs.; pine (Ger.), 4 cs.; rosemary (Sp.) 7 cs., 2<sup>o</sup> dm., (Hun.) 1 cs.; rosewood (Braz.), 10 dm.; sage (Sp.), 5 cs.; sandalwood (Fr.) 4 cs., (Aust.) 26 cs.; sassafras (U.S.), 3 cs.; spearmint (U.S.), 7 cs.; thyme (Sp.), 1 cs.; vetiver (It.), 3 cs.; wormseed (U.S.), 1 cs.; undescribed (Fr.), 11 cs.

### Pharmaceutical Chemicals, etc.

A FEW minor alterations are recorded, but they do not affect the steady tone of the market. Creosote B.P. is firmer, while some offers of hexamine are cheaper. Chloral hydrate has been active and is steadier. Ferri quin. cit. is dearer; Dutch milk sugar and caffeine are cheaper.

ACETANILIDE continues steady but quiet: B.P. crystals and powder, 1s. 5½d. to 1s. 6d. per lb.

AMIDOPYRIN is quiet at about 8s. 1d. to 8s. 2d. per lb.

ASPIRIN continues in good demand with prices well maintained at 2s. 5d. to 2s. 7d. per lb. for best brands as to quantity.

BARBITONE remains quiet and rather easy as quoted by dealers at 5s. 8d. to 5s. 10d. per lb.

BENZALDEHYDE (f.f.e.) is unchanged, with quantities in demijohns at 1s. 11d., and small lots up to 2s. 3d. per lb.

BENZOIC ACID (B.P.) is fairly active: prices range from 2s. 0½d. to 2s. 1d. per lb., for quantities and to 2s. 2d. for small parcels.

BENZONAPHTHOL is dull at 3s. per lb., in five-kilo parcels.

BROMIDES show no change, with business on the small side: prices quoted by dealers are for not less than ton lots: ammonium, 1s. 11½d.; potassium, B.P. crystals, 1s. 7½d.; granular, 1s. 7d. to 1s. 7½d.; sodium, B.P., is 1s. 10½d. per lb., in cases. British makers' list prices: ammonium, from 2s.; potassium, 1s. 8½d. to 1s. 9½d.; sodium, B.P., 1s. 11d. to 2s. per lb., in cwt. lots.

CAFFEINE.—Pure crystals are offered at the cheaper rate of from 6s. 10d. to 7s. 1d. per lb.; citrate is from 5s. 3d. to 5s. 6d.

CALCIUM LACTATE is steady, with a fair business: quoted from 1s. 1½d. to 1s. 2d. for quantities; small lots, 1s. 2½d.

CHLORAL HYDRATE has been quite active and prices quoted are now very steady at 3s. 2d. per lb. and upwards for duty-paid crystals.

CITRIC ACID (B.P. CRYSTALS).—Supplies on spot are more free this week, but it seems that most of the parcels recently landed were already sold: spot is fully maintained at 1s. 11½d. to 2s. per lb. for foreign, the latter price being asked for the new arrivals. For shipment 1s. 10d. c.i.f. is quoted.

CREOSOTE (B.P.) is firmer and looks like moving still higher; now quoted on spot at 1s. 8½d. to 1s. 9½d. per lb.

CREOSOTE CARBONATE is unchanged on a quiet market at 5s. 10d. to 6s. per lb.

FERRI ET QUIN. CIT.—Makers have advanced the price by ½d. per oz. and now quote 25-oz. tins at 9½d.; 4 x 25-oz. tins 9d., and 100-oz. tins 8½d. per oz. net.

GUAIACOL CARBONATE remains quiet at 4s. 8d. to 4s. 10d. per lb.

HELIOTROPINE is quoted at 4s. 6d. per lb.

HEXAMINE.—In some respects the market is slightly easier, with offers of small crystals in quantities down to 2s. 1d. per lb.: powder is unchanged at 2s. 3d., and free-running crystals at 2s. 2d. to 2s. 4d. per lb., as to quantity.

HYDROQUINONE is receiving fair inquiry from 3s. 8d. per lb. for half-ton lots up to 4s. 9d. for 14-lb. parcels.

LACTIC ACID.—B.P. is easy at 2s. 8½d. per lb. for cwt. carboys; business has been quiet.

METHYL SALICYLATE (B.P.) remains dull and unsteady at 1s. 5d. to 1s. 6d. per lb. for quantities.

METHYL SULPHONAL continues to be offered at the bottom prices of 9s. to 9s. 3d. per lb., with not much business being done.

MILK SUGAR.—There seems to be some cutting and business is reported at under the quoted figure of 55s. per cwt., for B.P. in quantities.

MUSK XYLOL is offered at the cheaper rate of 7s. per lb.

PARAFORMALDEHYDE (100 per cent. powder) continues steady but quiet: quoted from 1s. 8d. to 1s. 9d. per lb.

PARALDEHYDE is unchanged, with business limited: quantities at 1s. 1d. to 1s. 2d. per lb., in carboys; small parcels, 1s. 3d., in bottles.

PHENACETIN is moving in fair quantities at 2s. 5d. to 2s. 6d. per lb.

PHENAZONE from first-hand sources of supply is steady at 3s. 11d. to 4s. per lb.; some second-hands are offering down to 3s. 10d. per lb.

PHENOLPHTHALEIN continues at Convention prices of 5s. 11d. to 6s. 1½d. per lb., as to quantity; market is quiet.

POTASSIUM PERMANGANATE (B.P.) is slow of sale: large quantities at 5d. per lb.; two or three cwt., 5½d.; small parcels, 5½d. per lb.

RESORCIN is quoted in the region of 3s. per lb.; market has been rather quiet.

SALICYLIC ACID (B.P.) remains quiet with prices for quantities at about 1s. 2d. per lb.; ordinary lots, 1s. 3d.; there is keen competition for orders.

SALOL is steady at the new Convention prices of 2s. 4½d. per lb., for cwt. lots, and 2s. 5d. for smaller parcels.

SODIUM BENZOATE (B.P.) meets with a fair demand for powder at 1s. 7½d. to 1s. 7¾d. per lb., to quantity.

SODIUM DIETHYLBARBITURATE is slow of sale and irregular: quoted from 7s. 9d. per lb.

SODIUM SALICYLATE (B.P.) is steady, with about average business being done: crystals, from 1s. 8d.; powder, from 1s. 7d.; large crystals, about 1s. 9d. per lb.

SULPHONAL remains quiet, with cheap spot offers at from 6s. 6d. per lb.

TANNIC ACID.—B.P. *levis* is moving well: quantities at 2s. 10d. per lb.; small parcels, 3s.

TARTARIC ACID (B.P. CRYSTALS).—There has been no great amount of business about, but the market continues unchanged and very steady at 1s. 4½d. to 1s. 4¾d. per lb., less 5 per cent. for foreign.

TERPIN HYDRATE is quiet at 1s. 5d. to 1s. 6d. per lb.

THYMOL has been sold occasionally in quite small lots and then at cut prices of about 9s. 9d.; quantities at about 9s. 6d. per lb.

VANILLIN has been in fair request and sales prices for quantities have been down to 15s.; cwt. lots, about 15s. 3d. per lb. for 100 per cent. from cloves.

### Industrial Chemicals, etc.

London, March 28.

THE industrial chemical market continues steady and there is again this week little change to comment upon, except a revision of the Convention prices for red and white lead.

ACETIC ACID is unchanged, with the usual business moving: 30 per cent. technical, £36 15s.; 80 per cent. pure, £37 per ton in barrels: glacial, pharmaceutical, 99 to 100 per cent., £66, in glass demijohns; glacial, in barrels, £56 per ton, ex store.

ACETONE is bright, with full rates being obtained: B.G.S., in drums, £64 to £67 per ton, ex store.

ALUM remains quiet: lump, spot, £8 5s. to £8 7s. 6d. per ton, in casks, ex store.

AMMONIA (ANHYDROUS) continues to be offered at very keen rates; business has been moving in good quantity: quoted from 9d. to 11d. per lb., in loaned cylinders, carriage paid.

AMMONIUM CHLORIDE is steady but quiet, with dealers quoting grey galvanising on spot at £22 per ton, in casks, ex store: slightly cheaper for contracts.

ARSENIC.—Cornish agents reported a rather better demand, chiefly for small lots of five to ten tons, the price generally paid being £17 5s. f.o.r. mines for 99 per cent. It is reported that offers from Belgium have lately been altogether withdrawn.

BARIUM CHLORIDE remains very quiet: 98 to 100 per cent. prime white crystals are offered on spot at about £7 12s. 6d. per ton, in casks, ex store.

COPPER SULPHATE is steady with a fairly active business for export on the basis of about £26 to £26 5s. for casks, less 5 per cent. Terms for home use range upward of £27 delivered. The bulk of export business is now being done direct by producers or their agents, while merchant business has practically ceased.

CREAM OF TARTAR is firm at former rates, although there is no great amount of business moving: B.P. quality, 99s. 6d. to 100s. per cwt., less 2½ per cent. for foreign powder.

FORMALDEHYDE is steady, with average business moving: 40 per cent. by volume, £37 per ton, in casks, ex store; cheaper for quantities to come forward.

FORMIC ACID is firm at full rates, dealers quoting 85 per cent. at £46 5s. to £46 12s. 6d. per ton, in carboys, ex store.

GLAUBER'S SALT is steady but quiet: spot, commercial quality, £3 12s. 6d. per ton, in single bags, ex store; slightly less for quantities to come forward.

ISOPROPYL ALCOHOL is a keen market with a good business being done: reliable material is offered at 10s. 9d. to 11s. 3d. per gallon, in drums, for quantities.

LEAD PRODUCTS.—Lead acetate has been moving in moderate quantities at steady prices: brown, £40 10s.; white, £42 10s. per ton, in casks, ex store; red lead, imported, is offered by dealers at about £30 per ton c.i.f. London. White lead: Convention prices for dry and ground in oil have been revised and advanced; particulars will be found on page 284.



OXALIC ACID is very steady and business continues in good volume: dealers quote at £29 17s. 6d. to £30 per ton, ex wharf.

POTASSIUM CARBONATE.—Business is moderate only: dealers quote 90 to 92 per cent., £25; 96 to 98 per cent., £26 per ton, in casks, ex store; slightly less for contracts.

POTASSIUM CHLORATE is steadier, but business remains poor: quantities to come forward, 2½d. to 3d. per lb.; small spot parcels, 3¼d. to 3½d. per lb., ex store.

POTASSIUM PERMANGANATE.—Commercial quality is very quiet: dealers quote large quantities in two-cwt. drums at 4½d. to 4¾d. per lb., ex store.

POTASSIUM PRUSSIAN meets with a fair amount of business: yellow, 6½d. per lb., in casks; small parcels, 7d. per lb.

SODIUM ACETATE is bright, with supplies on spot very short: dealers' prices are firm at fully £21 per ton, in casks, ex store.

SODIUM CHLORATE is steadier, although still quiet: quantities to come forward at 2½d. to 2¾d. per lb.; small spot parcels, 3¼d. per lb.

SODIUM HYPOSULPHITE is steady, with business on a fair scale: dealers quote pea crystals at £15 to £15 2s. 6d. per ton, in one-cwt. kegs; commercial, £9 10s. per ton, in casks; British makers' price for pea crystals to home consumers on contract, £15 per ton, carriage paid to buyer's station.

SODIUM PRUSSIAN is moving in fair quantities at about 4½d. per lb., in casks, for large quantities; small parcels, 5d. per lb., ex store.

SODIUM SULPHIDE is unchanged at £9 10s. for 60 to 62 per cent. solid and £10 10s. for broken, in drums, ex wharf.

SULPHUR.—There has been a steady demand for crude and refined. The former is quoted £5 12s. 6d. to £5 17s. 6d. per ton and terms for refined are as follows: Sicilian flowers £13 7s. 6d., refined ground £12, and roll £10 15s., all c.i.f.

COAL-TAR PRODUCTS, ETC.—Pitch has taken a turn for the better and closes steady, otherwise the products in this section are unchanged, with business rather quiet in most directions. ANILINE OIL is steady at from 8d. per lb., packages extra, carriage paid, for large quantities. ANILINE SALT shows no change at from 8d. per lb., packages extra, carriage paid. BETANAPHTHOL is steady in large quantities at 10d. per lb., carriage paid. CARBOLIC ACID CRYSTALS remain unchanged, with a normal business. CREOSOTE OIL is unchanged on a steady but slow market: ex works, 7½d.; f.o.b., 8½d. per gallon, in bulk quantities. CRESYLIC ACID.—There is less inquiry but prices remain firm. NAPHTHALENE is dull and rather easy at about £17 per ton for flakes and balls, in cases, ex wharf. METHYL ALCOHOL is meeting with fair business, with small spot parcels at about £45 per ton, in drums, ex store; slightly cheaper for quantities. PYRIDINE is still neglected, with the price nominal at about 6s. per gallon, f.o.b. TOLUOL is quiet: commercial 90's, 1s. 6d. to 1s. 7d.; pure, 1s. 9d. to 1s. 10d. per gallon, at works. XYLOL is unsteady: pure, 1s. 9d.; commercial, 1s. 5d. per gallon, at works. PITCH.—There is a slight recovery to report, with the market quotation now at 60s. per ton, f.o.b. East Coast.

#### Fixed Oils, etc.

CONDITIONS remain quiet, but there has been no decided change in quoted prices. Palm oils are steadier but still quiet. Linseed oil and American turpentine are about unchanged. ACID OILS are steady but dull: coconut and/or palm kernel, 37s.; groundnut, 31s. 9d.; soya, 28s. 6d. spot. CASTOR is unchanged, with business dull: pharmaceutical, 51s.; first pressings, 46s.; second pressings, 43s. per cwt., in barrels, in not less than one-ton lots. Finest Italian is cheaper at 76s. 6d. per cwt. on the spot in cases, and for shipment 68s. 6d. c.i.f. is quoted. COCONUT.—Prices quoted are about the same; market still dull: deodorised, spot, 47s. 6d.; Cochin, 42s. 6d. c.i.f.; Ceylon, 52s. 6d. c.i.f. COTTON.—Some grades are cheaper; market remains quiet: deodorised, 44s. 3d.; common edible, 43s. 3d.; soap-making, 38s. 6d.; crude, 35s. 3d. spot. GROUNDNUT is easier on a slow market: deodorised, spot, 47s.; crude Oriental, 42s. c.i.f. PALM KERNEL is quiet and unchanged: deodorised, 45s.; crude, 41s. spot. PALM.—Moderate business is reported, with values for most grades just about level on the week: Lagos, 35s. 6d.; softs, 33s. 1½d.; mediums, 33s. 6d.; hards, 33s. 3d.; bleached, 36s. 3d. spot. RAPE has been quiet and easier: refined, 45s. 6d.; crude, 43s. 6d. spot. SOYA is steadier but still dull: deodorised, 39s. 3d.; crude, 35s. 6d. spot. LINSEED (raw, naked) shows little change on the week but closes irregular and quiet: on spot, 29s.; March, 23s. 3d.; April, 23s. 4½d.; May-August, 29s. 3d.; September-December, 30s. 4½d. Boiled oil, on spot, 32s. 9d. Hull, on spot, 28s. 9d.; April, 23s. 9d.; May-August, 29s. 6d.; September-December, 30s. 6d. WOOD.—Hankow, in barrels, is easier at 72s. per cwt. spot. TURPENTINE has been rather firmer, chiefly in sympathy with the firm American cable

advices, but trading here has not been active. Deliveries for last week were 1,980 barrels, making a total since January 1 of 23,503 barrels, which compares with 32,927 barrels a year previous. Stocks were returned at 45,630 barrels, against 43,912 barrels a year ago. Compared with a week ago prices showed some little improvement, market on Wednesday evening closing firm at 40s. 9d. per cwt., spot, April 41s., and May-June 41s. 3d. RESIN.—The market has been on the quiet side, but the undertone is steady and American reports are firm. C.i.f. quotations for shipment from America show but little alteration, with W.G. about 22s. and W.W. quality 23s. 9d. per cwt. OLIVE is dearer at 6s. 7d. per gallon c.i.f. for French (B.P.), and at 6s. 9d. per gallon on the spot.

LUBRICATING, MINERAL, BURNING OILS, ETC.—Most products remain slow of sale and prices are as quoted in last week's *C. & D.*, p. 394. Lubricating oils are a little cheaper on spot. Solvent naphthas remain very dull. LUBRICATING OILS.—Spot prices are slightly easier for most grades this week; market quiet: Spot, pales, £9 10s. to £22; reds, £11 to £21 10s.; dark cylinders, £11 15s. to £23; filtered cylinders, £12 to £27 5s. per ton, less 2½ per cent., ex wharf, London; slightly less for tank lots.

#### The White Lead Convention

THE comments in our article published in the *C. & D.* of March 3 (p. 234) have proved to be singularly correct. Representatives of this international Convention met in London in the middle of the month and the scheme of prices, at least for the British market, was revised. The alterations give effect to the statement we made previously, that unless there was a premium on British white lead over the prices for the imported material there would be practically no demand for the latter. Under the original scheme the prices for both were approximately level, the small margin in favour of foreign being negligible. Added to the admittedly superior quality of the home-made product was the important point that home makers could supply small lots from stock, a barrel or two at a time, and could, if necessary, give reasonable credit. The result was that since the introduction of the Convention importers had done practically no business in this market. This, of course, was unsatisfactory to both agents and the foreign makers, and no doubt strong representations were at once made to bring about such drastic changes in such a short time as the new arrangements show. Briefly, foreign dry white lead is now at a discount of £1 10s., and foreign ground white lead in oil is £4 per ton below that charged for British. From the following full schedule of prices it will be seen that a further increase in prices has been made. Now that the imported and British products are on about a competitive level it is not expected that any further rearrangement of sales prices will take place during the next six months. The following are the new prices:—

Dry White Lead, eight-cwt. lots, carriage paid, £42 per ton, less 5 per cent. discount, monthly account.

| Rebates for Contracts |     |     |     | Per ton |
|-----------------------|-----|-----|-----|---------|
|                       |     |     |     | £ s. d. |
| 5 to 15 tons ...      | ... | ... | ... | 5 0 0   |
| 15 to 25 tons ...     | ... | ... | ... | 5 10 0  |
| 25 to 50 tons ...     | ... | ... | ... | 6 0 0   |
| 50 to 200 tons ...    | ... | ... | ... | 6 10 0  |
| 200 to 500 tons ...   | ... | ... | ... | 6 15 0  |
| 500 up ...            | ... | ... | ... | 7 0 0   |

Reduction for Foreign white lead (dry), £1 10s. off above prices.

Ground white lead in oil (five to ten-cwt. lots), £50 per ton, less 5 per cent. discount, carriage paid, monthly account.

| Rebates for Contracts  |     |     |     | £ s. d. |
|------------------------|-----|-----|-----|---------|
|                        |     |     |     | £ s. d. |
| 10 cwt. to one ton ... | ... | ... | ... | 0 10 0  |
| 1 to 2 tons ...        | ... | ... | ... | 1 10 0  |
| 2 to 5 tons ...        | ... | ... | ... | 3 0 0   |
| 5 to 15 tons ...       | ... | ... | ... | 6 0 0   |
| 15 to 25 tons ...      | ... | ... | ... | 7 10 0  |
| 25 to 50 tons ...      | ... | ... | ... | 8 0 0   |
| 50 to 100 tons ...     | ... | ... | ... | 8 10 0  |
| 100 up ...             | ... | ... | ... | 9 0 0   |

Extra 5s. per ton rebate for deliveries of two tons upwards. Reduction for Foreign ground white lead, £4 off above prices. The above contract figures are for delivery during the next six months. An extra 1 per cent. discount is given for payment net cash against documents through a bank.

THE IMPORTS of medicinal preparations into Kenya and Uganda during 1926 amounted to £42,051; of the total £37,127 is credited to Great Britain, £2,162 to France, £1,549 to India and Burmah, and £1,213 to "other countries."





Letters for this section should be written on one side of the paper only. Correspondents may adopt an assumed name for purposes of publication, but must in all cases furnish their real name and address to the Editor.

### Insurance Expenditure

SIR,—I feel that we should protest against any clause in the National Health Insurance Act Amendment Bill which should now or hereafter direct dispensing or the supply of appliances into any other channels. Personally, I very much regret that there is practically no hope of the powers and functions of Insurance Committees being transferred to county councils and local authorities, which I was longing to see effected. It is a sore point with me that money can always be found for every object except paying the chemist in full—he can always be put off and is expected to be silent about it. . . . It is time chemists, following the advice of Mr. Lloyd George, protested to their M.P.'s and through the public Press of their unjust and harsh treatment. . . .—Yours faithfully,

ALBAN ATKIN.

Hampstead.

### Competing with Outside Traders

SIR,—Mr. Herbert E. Kendrick, in his article "Meeting Competition" (*C. & D.*, March 17, p. 356), mentions several different ways in which he suggests that chemists should make an effort to recover their trade; but it seems to me that this is not so easy a matter as might be thought. Among other lines he quotes disinfectants, beeswax, naphthalene, etc.; these things are advertised and sold by stores and other traders. And the greatest difficulty is that these things are sold retail in these shops at prices which are in some instances almost lower than the chemists' wholesale rates. To get some idea of this I have been looking through several catalogues, and I have noted the following prices:—

|                     | Chemist  | Stores   | Wholesale |
|---------------------|----------|----------|-----------|
|                     | s. d.    | s. d.    | s. d.     |
| Borax B.P. ...      | 0 9 lb.  | 0 6 lb.  | 38 0 cwt. |
| Naphthalene ...     | 0 6 lb.  | 0 3 lb.  | 25 0 cwt. |
| Sulphur flowers ... | 0 9 lb.  | 0 3 lb.  | 34 0 cwt. |
| Sal ammoniac ...    | 1 3 lb.  | 0 8 lb.  | 0 10 lb.  |
| Turpentine ...      | 1 0 pint | 0 8 pint | 5 6 gal.  |
| Beeswax ...         | 4 6 lb.  | 2 6 lb.  | 3 2 lb.   |
| Camphor ...         | 0 6 oz.  | 0 3½ oz. | 4 3 lb.   |

Is it possible for an ordinary chemist to compete with these prices? I know that one can do better than the wholesale list prices by buying in quantity, but even then it does not affect the argument. Take naphthalene; this can be had 5s. cheaper a cwt. by buying right, but when packed in pound bags it comes to nearly 2½d. per lb.; is it worth selling at 3d.? The worst of it is that this article is selected for cutting by some members of our own trade, and so also is waterglass. The prices of waterglass are given as follows:—Chemists, 5d. lb., 8d. 2 lb.; stores, 4d. lb., 7d. 2 lb.; drug lists, 4s. and 6s. 3d. per doz. respectively. We buy a £5 lot to get pound tins at 3s.; how many small chemists can do with this quantity? Horticultural requisites run in localities, and in many places the demand is not constant enough to warrant a representative stock; but even in these the store men keep up the cutting, as on looking up a proprietary weed-killer I find the following figures:—Retail, 1s. 9d. and 5s.; stores, 1s. 8d. and 2s. 9d.; cost, 1s. 4½d. and 2s. 4d. The same trouble applies to floor polishes, etc. Even with such a thing as insect-powder the price is cut by these traders, the figures for an advertised line being:—Retail, 6d. and 1s.; stores, 5½d. and 11½d.; cost, 4s. 11d. and 9s. 10d. per doz. It is not worth turning over. The public now has got into the habit of classing these things with ordinary domestic requirements, and as such to be obtained with the weekly order for groceries.

Faithfully yours,

WILL B. MET (26/3).

### The R.P.U. Mass Meeting

SIR,—Surprise is a mild term to apply to the impression produced by a perusal of the account of the meeting of the London members of the R.P.U. at the Kingsway Hall (*C. & D.*, March 24, p. 369). After some remarks on the debatable problem of the profitability of Insurance dispensing, the chief speaker is reported to have said: "But, anyway, chemists should have considered the question before the last contract was due to end, April 30 last year." Such a statement leaves one rather breathless. After all, whose duty was it to be in touch with the condition of affairs and to advise chemists as to the best course to pursue if not the R.P.U., which acts as our representative in negotiations? The general body of panel chemists had no idea that they would be suddenly faced with a kind of ultimatum embodying two alternatives for acceptance or refusal until they were notified about a fortnight before the end of the term. Meetings were then called in each area to get the chemists' opinions, and as I am unfortunately on a border line I attended the meeting of each one; in each case the unanimous vote was to refuse both alternatives and leave it to the Government to make a better offer. I do not wonder that the speaker objected to chemists writing about their losses to the "Daily Telegraph"; but I cannot think that the chemist, who was actually 10d. out of pocket on one lot of insulin priced at 8s. 6d. plus 6d. fee, suffered much from ignorance of his subject—the void was in his pocket, not in his brains. I do not quite understand the statement that the Distribution Committee had liquidated the whole of the deficit. Which deficit—the third knocked off our fees during the latter part of last year or the fifth still being deducted?

Yours truly,

AMAZED (27/3).

### Dosage by Spoonfuls

SIR,—Surely it is time we settled finally the question of dose measurements so frequently referred to in the *C. & D.* I cannot agree with your correspondent, who stated that physicians ignore "spoon" measurements. Their writing of the apothecaries' symbols is merely a matter of brevity; they are well aware of the recognised equivalents, "cochlearium unum amplum," etc., and when they dispense rarely, if ever, use graduated slips denoting fractional parts. The tablespoonful being by far the most common dose, I consider it would be best to retain 3j. graduated bottles of good quality for 6-oz. and 8-oz. flats, all other sizes to be plain and to be graduated by the dispenser attaching a carefully marked slip. A measure (3j capacity) might be supplied when drachm or two-drachm doses are ordered. I have always advocated the offering at a moderate charge of a graduated glass tumbler.—Yours, etc.,

H. C. M. (1/3).

### Legal Queries

*F. H.* (20/3).—The percentage of profit is usually said to be 10 per cent., but few income-tax officers accept this figure without taking stock, and in some cases 10 per cent. may easily be too high. We are of opinion that the subscription to *THE CHEMIST AND DRUGGIST* should be allowed as a business expense by the Inland Revenue authorities, for the reason that it enables a chemist to carry on business in a more efficient manner, i.e., enables him to earn the income upon which tax is levied.

*Bromide* (26/83) has bought a leasehold shop with two flats above. One of the flats is occupied by a relative of the vendor at a very low rent. Is "Bromide" bound to accept this person as a tenant, and, if so, can he increase the rent? ["Bromide" will have to accept the vendor's relative as a tenant unless he can obtain from the County Court an order for possession of the premises upon one of the grounds mentioned in the Rent Restriction Acts. Similarly, the rent may be increased within the limits imposed by the Acts. There are so many points to be taken into consideration in deciding what is the best course to take in cases of this kind, that we advise "Bromide" to consult a solicitor.]



## Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

**A. P. (23/86).—MOWRA SEED AS A WORM KILLER.**—This is used for killing worms in lawns either by sprinkling it on the grass at the rate of about 8 oz. per square yard and well watering in, or by macerating 4 oz. of the seed in a quart of water for twelve to twenty-four hours, and then applying the mixture to a square yard of the lawn. The seed in either case should be in the form of a fairly fine powder or meal. See also *C. & D.*, 1927, II, 802.

**D. & C. (86/2).—WEEDKILLER.**—A concentrated solution of sodium arsenate is made by boiling arsenic 2 lb., caustic soda  $1\frac{1}{2}$  lb., in water 12 gallons, and when cold adding carbolic acid 10 oz. For use one gallon is mixed with twenty-five gallons of water and freely distributed on the weeds.

**A. R. P. (13/86).—FLUKE IN SHEEP.**—The essential links in the life cycle of this parasite are:—(1) Infested animal, (2) the fluke egg, (3) the embryo, (4) a freshwater snail, (5) the larval fluke attached to the grass, (6) the host animal. The remedies are extract of male fern, tetrachlorethylene and carbon tetrachloride. The last-named is the drug chiefly used at the present time, but it must be chemically pure. A single administration of 1 c.c. in soft gelatin capsule represents the dose for a sheep weighing up to 140 lb., and several wholesale drug houses are packing capsules of 5 gm. each being the dose for a sheep over six months old. A solution of copper sulphate (1.2 per cent.) applied at the rate of 120 gallons to the acre has been used to kill the snails. The treatment of fluke in sheep has been dealt with on several occasions in the *C. & D.* of late, notably in the following issues: 1926, II, 518 and 944; 1927, II, 451.

**E. C. C. (7/2).—TREATMENT OF BEE DISEASE.**—The use of nitrobenzene and safrol in the treatment of Isle of Wight disease of bees is as follows:—The brood frames of the stock to be treated should be covered with a quilt of porous material, such as unbleached calico, upon which a piece of camphor is placed in the centre. According to the strength of the colony and the degree of infestation, from "three to six pipettes" of the following mixture should be distributed as evenly as possible over the quilt where the bees are clustered:—

|                     |         |
|---------------------|---------|
| Safrol ... ..       | 1 part  |
| Nitrobenzene ... .. | 2 parts |
| Petrol ... ..       | 2 parts |

The treatment should be given just before dusk for from three to six consecutive days.

**F. B. (11/2).—WOODEN TONGUE IN CATTLE.**—There is no more recent treatment for actinomycosis than the potas. iodid. and hyd. iod. rub. Dissolve the potassium iodide (3v.) and bimiodide (3ij.) in water (3xx.). Give 3ij. in half-a-pint of cold water once daily for ten days. The dose should be given at the same hour each day. At times the disease reappears, but as a rule a few doses suffice in its treatment.

**P. & W., Ltd. (23/86).—SHAMPOO FOR DOGS.**—The following is a formula for a liquid shampoo for washing dogs:—

|                              |          |
|------------------------------|----------|
| Coconut oil soap ... ..      | 1 oz.    |
| Distilled water ... ..       | 4 oz.    |
| Dissolve with heat and add:— |          |
| Carbolic acid ... ..         | 20 drops |
| Eucalyptus oil ... ..        | 5 drops  |
| Allow to stand and filter.   |          |

**C. & C. (6/3).—WEED-ROTTING POWDER.**—This is a nearly black powder, containing aluminium, calcium and some sodium, which on acidification evolves an odour recalling that of an acetylene generator, much carbon dioxide being eliminated. It contains much nitrogen, which is liberated slowly by alkalis as ammonia; also there is evidence of urea production on acid hydrogens. It appears to be a form of cyanamide or nitrolim.

**D. T. R. (5/3).—STRAW-HAT VARNISH.**—The following is a formula for a straw-hat varnish of the type which dries glossy:—

|                       |         |
|-----------------------|---------|
| Orange shellac ... .. | 3 lb.   |
| Powdered resin ... .. | 1 lb.   |
| Benzoin ... ..        | 3 oz.   |
| Spirit ... ..         | 1 gall. |

The black dye is made by adding 1 oz. of spirit-soluble aniline black, which should have been previously rubbed smooth with about 8 oz. of the base. You should obtain permission to use industrial spirit.

**H. E. J. (13/3).—TONIC FOR CAGE BIRDS.**—Either of the following formulas could be adapted to your requirements:—

| I                          |      | II                    |        |
|----------------------------|------|-----------------------|--------|
| Tr. cinchonæ ... ..        | 3ss. | Tr. cinch. co. ... .. | 3ij.   |
| Tr. ferri perchlor. ... .. | mij. | Tr. gent. co. ... ..  | 3ij.   |
| Glycerin ... ..            | 3j.  | Syr. aurant. ... ..   | 3j.    |
| Aq. carui ... ..           | 3j.  | Elix. simp. ... ..    | 3iiss. |

Put a few drops on a lump of sugar in the cage daily.

**D. W. (17/3).—DESTROYING MOLES.**—The following are the methods used for ridding land of moles:—(1) Pledgets of cotton-wool soaked in carbon disulphide are placed in the animals' runs and covered over with turf; (2) earthworms soaked in a solution of strychnine (moles prefer live food); (3) calcium cyanide (see p. 426 of this issue); (4) trapping with a horsehair noose.

**A. E. H. (21/3).—WORMS ON LAWNS.**—The formula for the corrosive sublimate solution used for destroying worms on lawn is as follows:—

|                          |            |
|--------------------------|------------|
| Mercuric chloride ... .. | 1 lb.      |
| Hydrochloric acid ... .. | 22 oz.     |
| Water ... ..             | to 1 gall. |

Add one teacupful to ten gallons of water and sprinkle the grass. Other preparations used for this purpose are:—(1) Mowra meal; (2) lime water; (3) chlorinated lime solution (7 lb. in 100 gallons of water), followed by the use of plain water; (4) a powder prepared as follows:—

|                           |               |
|---------------------------|---------------|
| Quassia powder ... ..     | 10 lb.        |
| Cocculus indica in powder |               |
| Quillaia powder ... ..    | of each 2 lb. |
| Peat moss ... ..          | 23 lb.        |
| Garden soil ... ..        | to 112 lb.    |

Spread on the lawn and then water, using a fine sprinkler.

**F. G. (13/83).—ETHYLENE DIBROMIDE AND TETRA-ETHYL LEAD.**—The amount of ethylene dibromide added to tetra-ethyl lead is two parts of the ethylene compound to three parts of the lead dope (both by volume). The use of these ingredients for making anti-knock petrol and the employment of leaded petrol for running in motor engines is protected by patent.

## Retrospect of Fifty Years Ago

Reprinted from  
"The Chemist and Druggist," March 15, 1878

### Ponsælion

This word is manufactured from Pons-Ælii, the ancient Roman name of Newcastle, and is intended to distinguish from vermilion a new mercurial pigment discovered by Lewis Thompson. Ponsælion scientifically seems to be a hydroerythride of the protosulphuret of mercury, and was first made by passing a sample of Newcastle gas (whence its name), loaded with carbon bisulphide, through a solution of bicyanide of mercury in caustic potash. It is now made by boiling mercuric oxide in potassium cyanide solution, decanting, adding with agitation a considerable quantity of carbon bisulphide, and heating for half-an-hour on the water bath. At the end of this time the precipitate, which is at first black, becomes a scarlet powder of a very brilliant tint, differing from vermilion only in being less purple, and so little that an ordinary observer could hardly distinguish them. An eminent painter has declared that ponsælion is the nearest approach to the natural hue of the European complexion that has yet been produced. It is only attacked by aqua regia, and it is equally unaffected by sulphuretted hydrogen and light, so that it is practically permanent.





[Commenced C. &amp; D., July 5, 1924]

**Oleates.**—Oleates as a class of medicinal preparations were introduced in 1872 by John Marshall, F.R.S., and as found in pharmacopœias they are not pure chemical compounds, but merely compounds of oxides or alkalis with oleic acid, dissolved in great excess of the latter. Oleates may be made by direct combination or double decomposition. The alkali salts of oleic acid are precipitated from aqueous solution by concentrated alkali solutions, sodium chloride or other soluble mineral salts. Their hydrolysis by water is of practical and theoretical importance. The metallic oleates are mostly soluble in alcohol, benzene, chloroform, carbon tetrachloride, nitrobenzene, pyridine or petroleum spirit. The medicinal properties depend on the base and the pharmacopœial preparations may be considered equivalents of the corresponding ointments, but have advantages in that they are cleaner. They are, however, more irritating than ointments, and are usually diluted with a bland oil before application. Shoemaker proposed a process of precipitation by double decomposition between a salt of the base and a solution of Castile soap (sodium oleate with palmitate).

**Aluminium Oleate**,  $\text{Al}(\text{C}_{18}\text{H}_{33}\text{O}_2)_3$ , is a gelatinous mass insoluble in water, soluble with difficulty in hot ether and petroleum ether. It is produced by double decomposition of 28.4 parts of sodium oleate with 15.6 parts of potash lye, both dissolved in water: yield 25.9 parts. The preparation has a technological application to thicken lubricating oils, and is produced *in situ* for waterproofing fibres.

**Copper Oleate**,  $\text{Cu}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$ , is obtained by the interaction of sodium oleate and copper sulphate. It melts at  $100^\circ$  to a green liquid, soluble in cold ether (giving a green solution), in alcohol (giving a bluish-green solution), and in benzol.

**Lead Oleate**,  $\text{Pb}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$ , is a white powder which melts at  $80^\circ$  to a yellow oil, soluble in ether and petroleum ether, slightly soluble in absolute alcohol. It is prepared by the precipitation of an alkali salt with lead acetate. Basic lead oleate is the principal component of lead plaster, prepared by the saponification of olive oil or by heating oleic acid with excess of lead oxide.

**Manganese Oleate**,  $\text{Mn}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$ , a flesh-coloured powder, is slightly soluble in hot alcohol. Soluble in chloroform, ligroin, benzol and ether.

**Magnesium Oleate**,  $\text{Mg}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$ , is prepared by precipitating sodium oleate with magnesium chloride or sulphate. The crude salt is used to prevent fire in dry-cleaning works, where benzine is used as a cleaning agent. Magnesium oleate has found recent use, on account of its property of adhesion, as an addition to face powders and other cosmetic powders (up to 10 per cent.), either alone or with zinc stearate.

**Mercuric Oleate**,  $\text{Hg}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$ , melts at  $102^\circ\text{--}103^\circ$ . In the impure state is a pasty mass, slightly soluble in ether, more readily soluble in benzene, completely soluble in fatty oils. Prepared by decomposing sodium oleate with sublimate solution. Oleate of mercury is prepared according to the B.P. by the interaction of yellow mercuric oxide and oleic acid with the aid of heat, when a yellow unctuous preparation is obtained. It is readily absorbed, and was recommended by Marshall in cases of chronically inflamed joints, indurations after abscesses, superficial inflammations, sycosis, tinea, psoriasis and eczema.

**Potassium Oleate**,  $\text{KC}_{18}\text{H}_{33}\text{O}_2$ , is a transparent jelly-like mass far more readily soluble in water, alcohol and ether

than the sodium salt. One part of the salt dissolves in 4 parts of water, 2.15 parts of alcohol (0.821) at  $10^\circ$ , one part of alcohol (0.821) at  $50^\circ$ , 29.1 parts of boiling ether. It is hydrolysed by water to potassium hydroxide and the acid potassium salt.

**Sodium Oleate**,  $\text{NaC}_{18}\text{H}_{33}\text{O}_2$ , is prepared in the pure state by crystallisation from absolute alcohol, m.p.  $232^\circ\text{--}235^\circ$ , s.g. at  $13^\circ$ , 0.821. It is soluble in 10 parts of water at  $12^\circ$ , 20.6 parts of alcohol (0.821) at  $13^\circ$ , and 100 parts of boiling ether. It is a soapy powder, white or yellowish-white in colour, with a slight odour of oleic acid. It acts as a cholagogue and is used for the expulsion of biliary calculi.

**Tin Oleate** is prepared by adding a solution of stannic chloride to a solution of sodium oleate and collecting the precipitate. It has a greyish-yellow colour, is insoluble in alcohol and slightly soluble in oils, and is used as an ingredient in nail polishes to overcome brittleness and splitting of the nails, and to give them a brilliant lustre.

**Zinc Oleate**,  $\text{Zn}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$ , is a white powder prepared by precipitating sodium oleate with a soluble zinc salt. Zinc oleate ointment of the B.P. is prepared by the action of zinc sulphate on hard soap with soft paraffin as a base. This is not a pure oleate, but an oleo-stearate or oleo-palmitate. The ointment is used in chronic eczema and cutaneous eruptions. Organic addition and substitution products are known, but are of relative unimportance. The methyl ester of oleic acid (s.g. 0.879 at  $18^\circ$ , boils at  $212^\circ\text{--}213^\circ$ ) and the ethyl ester (s.g. 0.871 at  $16^\circ$ ) are the only esters of importance.

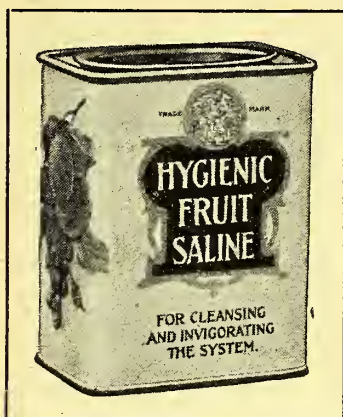
**Oleic Acid (pure).**—Oleic acid or elaidic acid,  $\text{C}_{18}\text{H}_{34}\text{O}_2 = \text{CH}_3(\text{CH}_2)_7\text{CH}:\text{CH}(\text{CH}_2)_7\text{CO}_2\text{H}$ , in the pure state at ordinary temperatures is a thick, colourless liquid, which solidifies on cooling to a crystalline mass melting at  $14^\circ$ , s.g. 0.898, iodine number 90.07. On distillation at ordinary pressure the compound is broken up into water, carbonic, acetic, caprylic and capric acids, while at the same time sebacic acid and hydrocarbons are formed. At  $250^\circ$  the acid can be distilled in superheated steam without change. Nitrous acid at ordinary temperatures converts oleic acid into elaidic acid, the same change taking place when the acid is treated with sodium bisulphite under pressure at  $175^\circ\text{--}180^\circ$  or with sulphurous acid at  $200^\circ$ . Oleic acid is insoluble in water, miscible with alcohol and ether, reacts in alcoholic solution neutral to litmus, and is soluble in chloroform, essential and fixed oils. It should be kept in bottles completely filled and stored in a dark, cool place. The preparation of pure oleic acid is not easy. Almond oil, olive oil or lard are saponified with potash lye; the freed fatty acids are then heated with lead oxide on the water bath for several hours in order to form the lead salts. The lead oleate is extracted with ether, decomposed with hydrochloric acid, converted into the barium salt, which is crystallised from dilute alcohol and so further purified, and converted into the acid by decomposition with tartaric or a mineral acid. Pure oleic acid can be prepared thus from technical oleic acid. Oleic acid is also prepared from tallow (owing to the absence of other fatty acids) by saponification with potassium hydroxide and precipitating the soap solution with lead acetate. The dried lead salt is extracted with ether and decomposed with hydrochloric acid under ether. The liberated acid is dissolved in ammonia and the solution treated with barium chloride. The barium salt is dried, dissolved in hot alcohol, and the solution allowed to crystallise, the crystallised salt being decomposed by a strong mineral acid or by tartaric acid. If olive oil is allowed to stand for twenty-four hours with cold sodium lye, triolein alone remains unsaponified and is a suitable material for the production of pure oleic acid. For the detection of oleic acid in oils a few drops of the oil to be examined are added to a solution of cotton-wool in concentrated sulphuric acid and water is gradually added. The presence of oleic acid produces a red coloration, which changes to violet on the addition of more water. Oleic acid has been recommended as a substitute for olive oil in biliary calculus, and the pure acid is proposed as a solvent for camphor and morphine for hypodermic use. In pharmacy it is used for the preparation of oleates, plasters and soaps.







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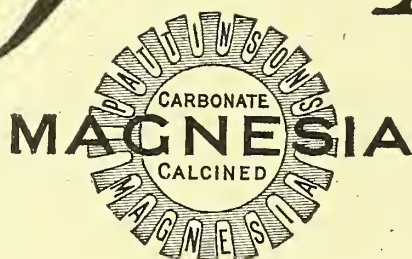
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(2)

**GENUINE**  
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**VINEGAR**

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Made from genuine Fruit Juice and pure cane sugar, supplies will keep indefinitely without fermentation or deposit. Sold in casks, carboys and Winchester quarts, sample and quotation will be sent on receipt of enquiry stating quantity required.

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**ZINC**  
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**Felling-on-Tyne**  
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# SOLAZZI *The Chemist's Brand* LIQUORICE JUICE

**SOLAZZI JUICE IS GUARANTEED  
TO CONSIST ENTIRELY OF THE  
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WITHOUT ANY ADMIXTURE WHATEVER**

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MAY WE QUOTE FOR YOURS?

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IN BULK OR PACKED.

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BATH. **76/-** gross tabs. wholesale.

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THE SOAP ITSELF NEEDS NO SPECIAL  
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**Compound Syrup of Hypophosphites**TRADE **"FELLOWS"** MARK

Compound Syrup of Hypophosphites "FELLOWS," in addition to being in constant and increasing demand, adds distinction to a chemist's show window.

It is a symbol of progressiveness and reliability.

**Tablets Laxative "FELLOWS"***"The Tablet With a Pedigree"*

IN TWO SIZES, NAMELY:

LARGE BOTTLES  
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SMALL BOTTLES  
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Surprisingly moderate quotations for

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Guaranteed up to the PHARMACOPŒIAL STANDARDS  
of QUALITY and STRENGTH.

Natural ADRENALIN Cryst. and Sol.  
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*For offers please apply to the*

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BUDAPEST X.

**"YEAST FOR VITAMIN B."**

*Yeast specially prepared for medicinal  
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GUARANTEED ABSOLUTELY PURE.

**MIDGLEY & PARKINSON, LTD.,**  
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**Teasdale's Chlorodyne**

Shows the best profit to the Chemist  
and is the cheapest to the Customer.

**NO Signature Required. Sold by CHEMISTS ONLY.**

From all the leading WHOLESALERS. **TERMS FROM**  
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IN POWDER  
CRYSTALS and  
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**GUARANTEED IN STRICT ACCORDANCE WITH B.P.'14****ACID PYROPHOSPHATE OF SODA**

Quality in all respects equal to Cream of Tartar, especially as regards stability of Baking Powder.

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# PREMIER PREPARATIONS

In demand by all Horticulturists.  
Specially packed in attractive decorated  
cans and packages for window display.

**BEST INSECTICIDE  
and FUNGICIDE  
IN THE WORLD.**



## SOX

CONCENTRATED LIQUID INSECTICIDE  
(Non-Poisonous.)

AWARDED VERY HIGHLY COMMENDED Certificate  
by Royal Horticultural Society after tests; also the Silver Gilt  
Medal at Ipswich Rose Show.

SOX is a very potent insect killer. It is superior to  
other insecticides because it **does not "harden"**  
or stunt the tender growth of young plants. Being  
free from any resinous or gummy matter it does  
not leave any sediment or stickiness on plants.

SOX is instantly prepared with water—is sent out  
in concentrated strength, thus going twice as far as  
most insecticides, and is, therefore, most economical  
in use.

SOX is incomparable for general use against: **APHIS, GREEN and BLACK FLY, GOOSEBERRY SAWFLY, WHITE FLY, MEALY BUG, WOOLLY APHIS, RED SPIDER, CAPSID BUG, AMERICAN BLIGHT.**  
It also has outstanding merits as a wash against **MILDEW.**

A further invaluable feature of SOX is that it not only kills insect life but also acts as a deterrent  
against butterflies depositing their eggs where it is sprayed.

**SOX  
IN TABLETS.**



The tablet form is manu-  
factured particularly for  
use under glass on delicate  
foliage, and will be found of  
great value for Greenhouse  
or Stove work, also for out-  
door use in small gardens.



## DYOWEED

NON-ARSENICAL WEED KILLER.

A POWERFUL Weed Killer, free from arsenic, yet quite effective against vegetable  
and fungus growth. We cannot too strongly recommend this excellent Weed  
Killer. It can be used with perfect safety. There is no fear of poisoning children,  
valuable animals or poultry where Dyoweed is used. **Dyoweed can be used in a  
generous manner on garden paths and drives with perfect safety. The use of arsenical  
weed killers in such manner is always a source of grave danger.**

DYOWEED is simplicity itself to use. It mixes immediately and freely in cold water. The proportions to be employed in  
ordinary cases are 1 part of Weed Killer to 50 parts water, or for use in small quantities, 3 to 4 egg-cups full to a gallon of water.  
DYOWEED was awarded Silver Gilt Medal at Ipswich Rose Show.

DYOWEED is the most economical non-arsenical Weed Killer, since it is used at 1 in 50 against 1 in 25 of other non-  
arsenical Weed Killers.

## PRIZE-CROP

ALKALINE FERTILIZER.

Specially compounded for the production of **FIRST QUALITY Vegetables, Flowers  
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"PRIZE-CROP" Fertilizer is obtained by scientifically combining in a perfectly balanced mixture all the  
essential plant foods required. Nitrogen without its equivalent requirements of Potash is likely to produce  
quick but scraggy growth which is unprofitable. Many Fertilizers unscientifically blended force the growth  
of the plant too rapidly which does not allow it to attain proper maturity. "Prize-Crop" yields its food  
gradually and lastingly to the plant, therefore all Gardeners will appreciate its great value—furthermore—  
being Alkaline, it has an enormous advantage over many other fertilizers which leave traces of acidity in  
the soil after use.

Some Show Successes obtained with "Prize-Crop" & "Maskris" in one year.

THE BLUE RIBAND of the Horticultural World—viz., the Freedom  
of the Worshipful Company of Gardeners, carrying with it the Free-  
dom of the City of London, was awarded to Mr. J. R. Smith of Watford.  
A London user gained 19 prizes for 19 entries.

Another London user gained 6 firsts, 3 seconds, a Challenge Cup,  
Silver Medal and R.H.S. Banksian Medal for 11 entries.



Wholesale and Retail Price Lists and Excellent Agency Terms on application to:—

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ADELAIDE HOUSE,  
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# BATTLE'S

## VETERINARY & AGRICULTURAL SPECIALITIES

Approved

SHEEP DIPS  
CATTLE MEDICINES  
LAMBING OILS  
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POWDERS  
DOG & POULTRY  
PILLS  
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(Packed under own name if desired)

*Full Price List on application.*

SANITARY FLUIDS  
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WEED KILLERS  
(POISONOUS &  
NON-POISONOUS)  
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WORM KILLER



BATTLE, HAYWARD & BOWER, LINCOLN

### Veterinary

## Antiphlogistine

### SIZES AND PRICES:

|        | PRICE PER DOZ. | RETAIL PRICES | PROFESSIONAL PRICES        |
|--------|----------------|---------------|----------------------------|
| 5 ozs. | 12 -           | 1 9           | 1 6 per tin; 15 - per doz. |
| 17½ „  | 33 -           | 4 6           | 3 6 „ 39 - „               |
| 5 lbs. | 109 6          | 15 -          | 11 - „ 31 6 per ½ doz.     |

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5% on £2 orders. Cash with order. 10% and 1½%  
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*You can include with orders for Antiphlogistine, to secure quantity terms.*

**THE DENVER CHEMICAL Mfg. Co.**

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## HORTICULTURAL PRODUCTS

Garden Manure. Plant Fertiliser. Humus Manure. Special Manures for all plants—Roses, Sweet Peas, Carnations, Chrysanthemums, Bulbs, Potatoes, Tomatoes, Fruit Trees, Strawberries, Vines, etc. Soil Pest Destroyer, Lawn Manure, Lawn Sand, Weed Killers, Worm Destroyers, Moss Destroyer, Insecticides, Bordeaux Mixture, Nicotine Wash, Winter Washes, &c.



## AGRICULTURAL PRODUCTS

Special Manures for all Crops—Phos-Lime, Superphosphate, Charlock Destroyer, Sheep Dip—Liquid and Solid, Tar Distillate Washes, Animal Washes, Disinfectants, &c., &c.



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Destroyer for Rats and Mice—Liquid and Paste Forms, Fly Destroyer, Antiseptic Lotion, Antiseptic Ointment, Disinfectants for all purposes.

*Full particulars and prices of "Ferry" Products can be had on application to the Sole Manufacturers:*

THE BRITON FERRY CHEMICAL AND MANURE  
CO. LTD. (Dept. U.4), Briton Ferry. (Estd. 1886.)

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**HARVEY'S**

Watts' Embrocation, or Curb Bottle.  
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Worm & Condition Powders.  
Watts' Red Lotion.  
Hair-Restoring Ointment.  
Edos, or Tasteless Purging Powder.

**HARVEY'S****Great**

*Protected Prices*  
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**Remedies for the Horse****HARVEY'S**

Koppos Powder.  
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Of all the leading Druggists' Sundries Houses  
**HARVEY & COMPANY, Ltd., Dublin**

**Continuous and Steadily Advertised Goods  
FOR DESTROYING RATS AND MICE****DANYSZ VIRUS**

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Virus for Rats and Mice, single tube, 2/- .. 15/- per doz.  
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Date-expired tubes returned to us postage paid will be exchanged free of charge.

**Danysz Virus in Liquid Form**

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Quart Bottles 6/- each .. 4/6 each  
Pint " 4/6 " .. 3/9 "

**HALLER'S EXTRACT OF SQUILL  
and DANZO RAT KILLER**

Discount off Retail Prices 25% Monthly Account, or 33% cash with order.

|                | Retail | Monthly a/c | Cash with order |
|----------------|--------|-------------|-----------------|
| 1/2 gall. tins | 10/-   | 7/6         | 6/8             |
| 1 " "          | 18/-   | 13/6        | 12/-            |
| 5 " "          | 80/-   | 60/-        | 53/4            |

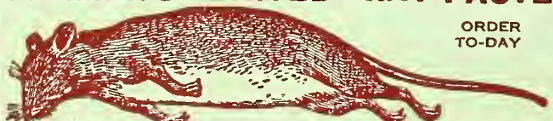
**DANZO BEETLE POWDER**

For destroying Blackbeetles, Cockroaches, Crickets, &c.  
Retail Prices (protected). Wholesale prices per doz.  
In tins 3d. .. 1/- .. 12/-  
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" 1/- .. 3/- .. 24/-  
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" Danzo Beetle Powder will not deteriorate by keeping.  
**CARRIAGE PAID ON ALL ORDERS.**

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**DEAD RATS AND LIVE PROFITS by pushing  
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**Sherley's**  
WORLD FAMOUS  
**Medicines**  
**LACTOL AND**  
**LACTOL BISCUITS**

**P.A.T.A.**

LACTOL and LACTOL BISCUITS have established the good name of Sherley with all dog lovers and breeders. Sherley's dog and cat medicines have created confidence and consequently command a ready sale.

Big advertising is behind all Sherley products. They are protected at prices showing the retailers a good profit margin, and our terms protect you against all possibility of loss. Excellent literature and showcards cover our various products. We realise your interests are ours.

**WRITE FOR  
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**A well advertised line  
showing a PROFIT of 38%**

Bob Martin's Dog Remedies are widely advertised, and a wealth of attractive sales aids is at your disposal. Please let us know your requirements.

**BOB MARTIN LTD., SOUTHPORT, LANCs.**

**BOB MARTIN'S**  
**TASTELESS**  
**CONDITION POWDERS**



**RASEVAN** (Regd.)  
**THE MOTH KILLER**

Retails at 1/- per block

For trade terms apply—  
**NORMAN EVANS & RAIS LTD.**  
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## More spent on gardens than on health!

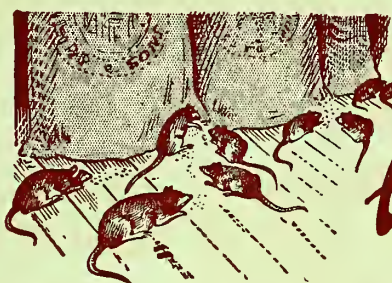
**XL ALL NICOTINE LIQUID  
INSECTICIDE**  
**XL ALL FUMIGATING COMPOUND**  
(Liquid or Cake)  
**XL ALL FUMIGATING SHREDS**  
**XL ALL MILDEW WASH**  
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**XL ALL WEED DESTROYER, etc.**

**M**OST of your customers spend more on their gardens than on their health. Why not stock garden goods—it would be very easy for the customer to buy poison goods (necessities in his garden) from you. Stock the XL ALL range—your gardening customers have known it almost since childhood and will buy at sight.

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*Stop  
the Waste  
- Now!*

**SOLD IN  
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**5<sup>d.</sup>, 9<sup>d.</sup> & 1/3**

**OF ALL CHEMISTS.**

*Certain  
Death* **RATS  
& MICE**

# BATTLES VERMIN KILLER

In packets at 5d.,  
9d., 1/3, 2/6, and  
5/- each (P.A.T.A.).

Of all Patent  
Medicine Houses  
at 3/-, 5/6, 9/-,  
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Largely advertised  
in the public press.

There is a tremen-  
dous demand for  
**BATTLE'S  
VERMIN KILLER.**

PREPARED  
ONLY BY

**J. C. M. BATTLE, Chemist, LINCOLN**



# "GLACIER" BRAND WATER GLASS

We invite your enquiries  
for Contracts,  
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NEW SEASON'S STOCK  
NOW READY.

For Right Prices, write Price's.

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## Garden Specialities

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We are again supplying attractive showcards and good class printed matter with agent's name and address on, free and carriage paid. If you have not already done so, will you please write us for new trade list and details of advertising matter we offer?

Abol Non-poisonous Insecticide,  
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Fertilizer, Sprayers, etc.

Write to-day, to

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We invite your enquiries for

# WATER GLASS

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FULL STRENGTH  
ATTRACTIVE LABEL  
LEVER LID TINS

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NOTTINGHAM.

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Jackets and Coats of very superior quality, made from the most reliable materials, smartly cut and thoroughly well finished in every detail.

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STOCK SIZES: 34 to 44 chest measure over waistcoat. Special pockets and little adjustments can be made without extra charge. POSTAGE on single coat 9d., but 20/- orders upwards carriage paid. SPECIAL PRICES FOR LARGE QUANTITIES.

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*In three grades—*

**G. GRADE** For glasshouse fumigation. Destroys white fly, green fly and thrip.

**"A" DUST** For the control of rats and other rodents.

**GRANULAR** For the destruction of insect pests in the soil.

*Obtainable from the leading wholesale houses. Full information on the use of these materials can be obtained from the wholesale distributors:*

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is what matters in a Cash Till. "Cheap" tills are dearest in the long run—they need replacing in a few months. The Gledhill is strong and sturdy, and can be trusted to do its job satisfactorily FOR A LIFE-TIME. The "Britannia" illustrated is up to the usual high standard of Gledhill products, and is guaranteed for 5 years. There is a Gledhill Till for every trader's need at a price to suit; send for beautifully illustrated Catalogue (post free) showing models from **55/-**

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"BRITANNIA"

## TO GET INTO DIRECT TOUCH

with the best buyers of Drugs,  
Chemicals, and allied products

## ALL OVER THE WORLD

use regularly the publicity  
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**THE CHEMIST & DRUGGIST**

## Proved HORTICULTURAL Products

Supplied plain for your own  
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Nico-Soap.  
Nicotine Powder.  
ARSENIC.  
Arsenate of Lead  
(Powder and Paste).  
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killer.  
SULPHUR.  
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MIXTURE  
(Paste and Powder).  
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(GASIT).  
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Tar Oil Wash  
(CARBO).  
Soil Steriliser  
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Wood Preservatives  
(LIGNOL and  
DYPHENIN).  
Soft Soap.  
Calcium Caseinate.  
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(finest).  
Powder Wormkiller.  
Weedkiller (Soluble  
NON-POISONOUS  
Powder).

Buggé's  
Insecticides  
Ltd.



Eclipse Works,  
Blackheath,  
S.E.3





This Medicine is a certain cure for many of the most distressing ills to which Horse and Cattle Flesh is heir. It surpasses all other Remedies in its promptness of action.

## WHY CATALINE PAYS TO STOCK.

**BECAUSE** it enjoys the largest sale of any Cattle Medicine Preparation and is on the P.A.T.A.

**BECAUSE** it is consistently advertised and all advertisements refer to the Chemist as the source of supply.

**BECAUSE** it is well packed, does what it is advertised to do, and shows the trade a satisfactory profit.

**BECAUSE** we do not employ travellers calling on Farmers or soliciting orders at cattle fairs or markets.

One size, retailed at face value, viz.

PER **3/9** BOTT.

*Terms - Cash with order.  
Carriage paid. Cases free.*

1 doz., 36/- per doz.    6 doz., 35/- per doz.  
3 doz., 35/6    12 doz., 34/6    „

Stocked by most Wholesale Houses.

**THE CATALINE CO. LTD.**  
**BRISTOL.**

## A LONG TIME AHEAD BUT WE ASK THOSE INTERESTED AMONG OUR ADVERTISERS AND SUBSCRIBERS to make a SPECIAL NOTE OF THE VETERINARY ISSUE

AND THE DATE

**OCTOBER 13th**  
**1928**

*All particulars from*  
**THE PUBLISHER**

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**Our DESIGN DEPARTMENT**  
**Our REPRESENTATIVES in**  
**LONDON**  
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BANDAGES  
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Telegrams : "Carnebro, Phone, London."

CORRESPONDENCE INVITED.  
WHOLESALE AND EXPORT ONLY.

Telephones : Clissold 3560 & 2318.

Manufacturers of  
**STRYCHNINE & SALTS**  
**CHRYSAROBIN**  
and other Fine Chemicals.

Distributors of  
**SANTONINE PURE CRYSTALS**  
(in original Russian parcels of 1 Kilo)

WHOLESALE AND EXPORT ONLY

## CARNEGIE BROS.

227-229, ESSEX ROAD

:

LONDON, ENGLAND

Cables : "Carnebro, London,"

Codes : A.B.C. 5th and 6th Editions, Bentley & Marconi

CONTRACTORS TO H.M. GOVERNMENT



# Progress!



Make 1928 a better year  
by pushing

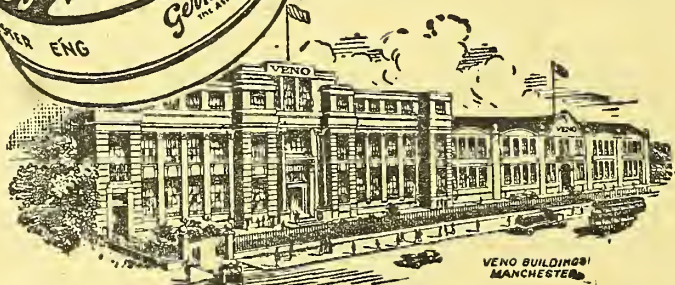
**Dr. Cassell's Tablets**

**Venol's Lightning**

**Cough Cure**

**Germolene**

Impressive advertisements in the  
National and Provincial Press.  
Striking new Show Material and  
Display Screens.



SEND FOR  
PARTICULARS  
OF WINDOW  
SHOW TERMS

**VENO DRUG CO. (1925) LTD.**

**VENO BUILDINGS, MANCHESTER**

# ALFRED BISHOP, LIMITED

## Bishop's Granular Effervescent CITRATE OF MAGNESIA

*Originally invented by us in 1837.*

### 1st Quality. P.A.T.A.

Proprietary Sizes - 1/4 & 2/6 @ 12/- & 22/6 doz.

Round Bottles, 1/4 lb. - 1/8 @ 13/9 doz.

Round Bottles, 1/2 lb. - 2/9 @ 23/- doz.

Round Bottles, 1 lb. - 4/9 @ 37/- doz.

Bottles containing 4 1/2 lbs. & 7 lbs. (Bottles extra) at 2/8 lb., less usual discount.

### No. 2.—SPECIAL. For Chemists' Own Labels.

1/4 lb. Rounds - Per doz. 12/- net In 4 1/2 lb. & 7 lb.

1/2 lb. Rounds - „ 20/- „ @ 2/- lb. net

1 lb. Rounds - „ 33/- „ (Bottles extra.)

### Popular Sizes.

We call attention to the exceptional value we are offering in 6 oz. and 8 oz. The price of this really good Citrate of Magnesia is no higher than cheap and “so-called” preparations.

6 oz. Oval, plain label, 10/8 doz. net. 8 oz. Oval, plain label, 12/9 doz. net.

### SALINES in Powder or Fine Granules.

In special bottles, one side Oval or in usual shape. Name and address free on not less than 3 doz. Write for details.

**48 SPELMAN ST.  
LONDON, E.1**





# THE ANGLO-FRENCH DRUG CO. LTD.

Distributing Agents for High-Class French Pharmaceutical Preparations.

*Continuous and active propaganda is being conducted with the Medical Profession for the following lines:—*

## SYRUP CRÉOSAL (Dubo's).

ADREPATINE

CRYOGENINE (Lumiérè)

DIGLOBIN

ELIXIR BROMO-VALERIAN (Gabail)

FEMIVIR

FOSFOXYL (Carron)

HOMOVIR

IODASEPTINE (Cortial)

IODOBESIN

KINECTINE

MYCOLACTINE

ORARGOL

SEPTICEMINE (Cortial)

STANNOXYL

AND

## INTRAVENOUS SOLUTIONS (A.F.D.).

*LIBERAL DISCOUNTS GIVEN TO RETAIL AND WHOLESALE CHEMISTS.*

Your co-operation in carrying stocks or in promptly obtaining supplies will be appreciated.

PRICE LIST AND PARTICULARS FORWARDED ON REQUEST.

**238a GRAY'S INN ROAD, LONDON, W.C.1**

Telephone: MUSEUM 4029.

Telegram: AMPSALVAS, LONDON.

Associated Houses: Paris, New York, Montreal, Bombay, Sydney, Wellington, Tokyo.

# Vapo-Cresolene



The great vaporised anti-septic, gives relief at once.

For nearly 50 years Vapo-Cresolene has been known and sold throughout the world as the reliable remedy for bronchial troubles such as

COUGHS, COLDS,  
INFLUENZA,  
BRONCHIAL ASTHMA,  
CROUP, BRONCHITIS, AND  
WHOOPIING COUGH.

AN

### EXTENSIVE ADVERTISING CAMPAIGN

is now running and will continue throughout the whole of the winter.

STOCK AND SELL VAPO-CRESOLENE.  
QUICK SALES,  
SUBSTANTIAL PROFITS,  
SATISFIED CUSTOMERS.

ALLEN & HANBURYS LTD., Lombard Street, E.C.3

CAN YOU MEET the demands of the Medical Profession and the Public for

## “ROBOVAL”

(Elixir Strontii Bromid. c Valerian Deodorat.)

An excellent Calmative and Nerve Sedative, free from any disagreeable taste or odour.

8 oz. BOTTLES, EACH 3/6

(Subject to the usual trade discount.)

### A BRITISH PRODUCT

Manufactured and extensively advertised by—

## ROBERTS & CO.

Pharmaciens to H.M. the King

76 NEW BOND STREET, LONDON, W.1

# ANTI-RHEUMATIC SALURIC SALT

(TRADE MARK)



**Per 10/6 Doz.**

3 Bottles as a Free Bonus  
with orders for 3 Dozen.



## BLYTON, ASTLEY & Co.

EAGLE LABORATORIES

LOWER BROUGHTON, MANCHESTER



**Genoxide**  
REGD

**PEROXIDE  
OF  
HYDROGEN  
B.P.**


STABLE TO THE  
LAST DROP.

In 3 popular sizes,  
retailing at:

4 oz. .. 1/-  
8 oz. .. 1/6  
16 oz. .. 2/6

P.A.T.A.

**GENEROUS  
MARGIN OF  
PROFIT—  
MINIMUM  
50%**



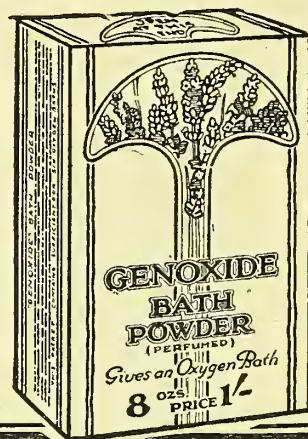
## GENOXIDE BATH POWDER

A genuine Oxygen bath powder. Subtly perfumed, fully effective and packed in attractive cartons. "Genoxide" Bath Powder sells at popular prices which will increase the demand for medicated Bath Powders

### RETAIL PRICES.

8 oz. 1/-  
16 oz. 1/9

Terms to Trade:—  
7/- per dozen 8 oz.  
packets, 12/- per  
dozen 16 oz. packets.



**GENOXIDE LTD. LUTON**

*May we call your attention to:—*

## PETROLAX

(REGISTERED TRADE MARK)

**THE IDEAL PARAFFIN AND AGAR-AGAR EMULSION  
AND**

## PETROLAX COMPOUND

**A COMBINATION OF PETROLAX AND PHENOLPHTHALEIN**

Manufactured and Marketed by an ALL BRITISH Firm.

Consequently the margin of profit to the Retailer is good.

*It is not necessary to have money lying on your shelf in order to get the best terms. You are the best judge of your requirements, and can order accordingly.*

**Note the Prices:—RETAIL 2/- (Nominal  $\frac{1}{2}$  lb.) 14/- doz.**

„ 3/6 ( „ 1 lb.) 24/- „  
„ 6/- ( „ 2 lb.) 44/- „

*Stocked by the leading Patent Houses, or direct from the SOLE MANUFACTURERS:—*

**C. R. HARKER, STAGG & MORGAN, LTD.**

**Mile End, London, E.1**



# WINDOW STICKERS FOR Non Substituting CHEMISTS

## 'ASPRO'

Write for this  
TO-DAY



We have been requested by chemists to supply anti-substitution advertising matter. We have, therefore, prepared this window sticker, size 23½ ins. x 7 ins. We suggest you write for one to-day. It will be sent Post Free



ALSO PUT IN AN 'ASPRO' WINDOW DISPLAY—Connect up with 'ASPRO' continuous advertising and make £5 to £10 a week.

**ASPRO IS LISTED ON THE P.A.T.A.—  
and shows you a protected profit**

**LOOK WHAT  
CHEMISTS SAY**

Chemists are realising the fact that by devoting their window display to advertised goods they are sharing the goodwill of about £10,000,000 worth of advertising yearly. 'ASPRO' is perhaps the best demonstration of this principle that England has seen. 'ASPRO' spends £250,000 a year in advertising and is increasing its appropriation as sales grow.

The chemist who places the 'ASPRO' Window Display in his window gets the benefit of this advertising just the same as if his own name appeared in the advertisement. Demonstrated results are always better than statements, so we herewith give one from the many letters received from chemists who are featuring 'ASPRO' Window Displays. It tells its own story.

Messrs. Gollin & Co. Pty. Ltd.

Dear Sirs,—I have pleasure in enclosing for your inspection a photograph of 'ASPRO' display. This display has been entirely successful except winning a prize in the competition which is yet to be judged. Apart from that I am well pleased with the results. Taking into consideration that 'ASPRO' is extensively advertised and has become a household word with people, I think that when I state that the sales almost doubled themselves that this fact is worth recording. Over and over again they are being bought by those who have once taken them. This in short is eloquent testimony of their worth. That they do what you claim I have no doubt, and however critics may argue their composition 'ASPRO' remains pre-eminent, or, as I show in the window, "the best by every test." Faithfully yours—

P.S.—In fairness to 'ASPRO' I should state that 'ASPRO' customers are frequently customers for other goods (*verb. sap.*).

'ASPRO' consists of the purest Acetyl Salicylic Acid that has ever been known to medical science, and its claims are based on its superiority.

Agents: **GOLLIN & Co. Pty. Ltd. ('Aspro' Dept.), SLOUGH, Bucks.**

No proprietary right is claimed in the method of manufacture or the formula.

'Phone: Slough 608.





*Collosol*

# IODINE PASTILLES

(CROOKES)

**M**EDICAL OPINION recognises this excellent method for the prevention of infectious diseases.

A convenient and most effective form of applying colloidal iodine; the ideal mouth and throat antiseptic.

NON-IRRITANT. — PALATABLE.

*Particulars of special bonus terms for retailers will be sent upon application.*

MANUFACTURED SOLELY BY

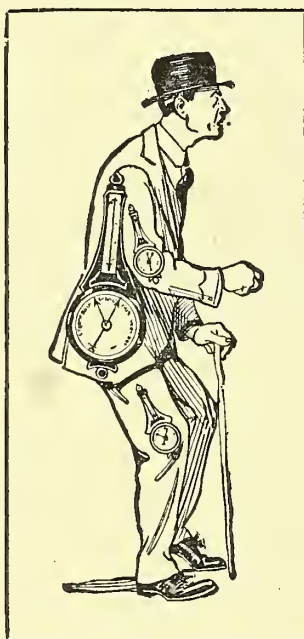
Telephone Nos:

Museum  
3663, 3697, 5757.

**THE CROOKES LABORATORIES**  
(BRITISH COLLOIDS, LTD.)  
**22 CHENIES STREET - LONDON, W.C.1**

Telegrams:  
"Collosally,  
Westcent,  
London."

Export Distributing Agents, AYRTON, SAUNDERS & CO., LTD., LIVERPOOL.



WRITE FOR PARTICULARS  
OF CASH BONUS FOR  
WINDOW DISPLAY

It does not matter where the Barometer is

# CURICONES

will deal with the trouble, be it

**Rheumatoid Arthritis, Neuritis,  
Rheumatism, Gout, Lumbago  
or Sciatica.**

**Quick Sales.**

WELL ADVERTISED.

**Generous Terms.**

RECOMMENDED BY DOCTORS.

Stocked by all Wholesale Houses.

*Other Lines which also pay to stock:—*

ANTHROIDS BALM, CURILAX, VICAPS, STEMAT ANTI-CATARRHAL TABLETS, STEMAT ANTI-CATARRHAL BALM, My Lady's ROLETTE WRINKLE ERADICATOR, SANALVE, THE RUOPAD MASSAGE APPLIANCE, VANITY BOXES, &c.

**STEPHEN MATTHEWS & CO. Ltd.**

Manufacturing Chemists.

**19-20-21 FARRINGTON STREET, LONDON, E.C.4.**

'Phone: City 8342.

Wires: "Curicone, Cent, London."



# SELL A THROAT PASTILLE OF MERIT

In 6d. and 1/- Tins. Also 2 lb. Flints.

## PRICE LIST.

|                      |    |    |              |
|----------------------|----|----|--------------|
| 1/- Tins             | .. | .. | 8/- per doz. |
| 6d. Tins             | .. | .. | 4/3 ..       |
| 2 lb. Glass Jars     | .. | .. | 2/6 per lb.  |
| (retail 4 ozs. 10d.) |    |    |              |

*Sole Agents to the Chemist Trade:—*



**CRAVEN HOUSE - KINGSWAY, W.C.2**  
SEND FOR SAMPLE AND PRICE TO-DAY.

# Petrolagar

**Y**OU please the doctor and his patient who is your customer by always being in a position to supply 'Petrolagar' on demand. An imitation of this or any other worthy product will displease your customer, no matter how cheap the imitation is.

*'Petrolagar' is the trade mark distinguishing the fine emulsion of mineral oil and agar-agar issued in four varieties, Plain, with Phenolphthalein, Alkaline and Unsweetened, manufactured only by DESHELL LABORATORIES LTD., BRAYDON ROAD, LONDON, N.16*



## If you are looking for the perfect TINCTURE OF IODINE BOTTLE

with RUBBER CORK and CAMEL HAIR BRUSH

*Write to us for samples and prices.*

**Makers for the Wholesale Trade.**

**M. J. FECHER, Ltd.**

Cuckoo House, DOD ST.  
LONDON, E.14.



# CLARKE'S BLOOD MIXTURE & OTHER PREPARATIONS

## Wholesale Prices.

|                                | SIZES.         | PRICE PER DOZEN.      |
|--------------------------------|----------------|-----------------------|
| Clarke's Blood Mixture .. ..   | 3/- & 12/-     | £1:7:0 & £5:8:0       |
| " Miraculous Salve .. ..       | 1/3, 3/- & 5/- | 11/-, £1:7:0 & £2:4:6 |
| " Special Aperient Pills .. .. | 1/3, 3/- & 5/- | 11/-, £1:7:0 & £2:4:6 |
| " Patent Skin Lotion .. ..     | 1/3            | 11/-                  |
| " Medicated Soap .. ..         | 1/-            | 9/-                   |

Orders: Minimum quantity £16 : 4 : 0 value.  
FREE CASES. Carriage paid upon orders of £100.

All Wholesale Houses keep a large stock of our Preparations and can supply smaller orders promptly.

Minimum Retail Selling Prices: 1/-, 1/3, 3/-, 5/- & 12/- Face Value, giving a **PROFIT** of 33 $\frac{1}{3}$ % on cost to Distributors.

An attractive Showcard and Dummies supplied on application.

Trade Mark: "BLOOD MIXTURE." Regd. No. 3275.

Sole Proprietors:

**THE LINCOLN & MIDLAND COUNTIES DRUG CO., LTD.**  
Park Street, LINCOLN.

# Himrod's

Established  
50 years

## ASTHMA CURE

**I**T is a powder to be burned and the fumes inhaled without any bad after-effects. Recommended by physicians throughout the world.

"I have tried every remedy ever invented, and 'Himrod's Cure' is the only one in which I have absolute confidence."—EMILY FAITHFUL.

"This is an excellent remedy for Asthma."—Sir MORELL MACKENZIE (in his Clinical Lecture at the London Hospital and Medical College).

"The only relief I could get; if I had only known of it before."—LORD BEACONSFIELD, in his dying moments.

**Himrod Manufacturing Company**

SOLE PROPRIETORS,  
270 WASHINGTON STREET,  
JERSEY CITY, N.J., U.S.A.

## NOTICE

### Sea-Vitoids

(Tablets)

Should any Chemist hold stock of these tablets over four months old, same should be immediately returned for exchange (made free of all cost) for fresh tablets now made under an entirely new and improved process.

Hygienic Food Products Ltd., Cecil House, Holborn, E.C.

ESTABLISHED OVER 60 YEARS

# PERRYS POWDERS

FOR CHILDREN'S AILMENTS



Wholesale from PERRYS POWDERS, Ltd., LEEDS

## INCREASED PROFITS

ON

## IRVING'S YEAST-VITE TABLETS

And  VITAMIN FOOD

ON AND AFTER APRIL 2nd, 1928, YEAST-VITE Tablets and YEAST-VIMAL will be sold under P.A.T.A. protection as follows:—

|                    |           |      |       |      |       |       |          |                     |
|--------------------|-----------|------|-------|------|-------|-------|----------|---------------------|
| <u>YEAST-VITE</u>  | Sizes     | 1/3  | 3/-   | 5/-  | 12/-  | 24/-  |          |                     |
|                    | at        | 12/- | 28/10 | 48/- | 114/- | 220/- | per doz. | } Net<br>30<br>Days |
| <u>YEAST-VIMAL</u> | New Sizes | 7½d. | 1/2   | 2/2  | 5/-   | 9/6   |          |                     |
|                    | at        | 6/-  | 11/3  | 20/9 | 48/-  | 90/-  | per doz. |                     |

## SPECIAL WINDOW SHOW BONUS TERMS

*cancelling all previous Bonus arrangements.*

For a 14-days' Window Display Bonus will be given as under :

|                   |   |   |
|-------------------|---|---|
| <u>YEAST-VITE</u> | 14 to the Dozen on £5 order and over (Assorted Sizes) | } Bonus on 1/3, 3/- and 5/- sizes only. |
|                   | 13 " " £3 " " " "                                     |   |

*No Bonus on 12/- or 24/- sizes, or less than ½-dozen 5/- size.*

## EXAMPLES

| Order.             | Bonus.           | Order.            | Bonus.              |
|--------------------|------------------|-------------------|---------------------|
| 3 doz. 1/3 £1 16 0 | 3 only 1/3       | 4 doz. 1/3 £2 8 0 | 8 only 1/3          |
| 1 " 3/- 1 8 10     | 1 " 3/-          | 1½ " 3/- 2 3 3    | 3 " 3/-             |
| ¼ " 5/- 0 12 0     |                  | ½ " 5/- 1 4 0     | 1 " 5/-             |
| <u>£3 16 10</u>    | EXTRA PROFIT 6/9 | <u>£5 15 3</u>    | EXTRA PROFIT £1 4 0 |

YEAST-VIMAL 13 to the Dozen on £3 order and over (assorted sizes).

THE PROMINENT DISPLAY OF  
NEW AND ATTRACTIVE SHOW MATERIAL  
WILL DOUBLE YOUR SALES.

*Write for Photographic Illustrations (with sizes) of New Showcards, Cut-outs, etc., sent FREE and carriage paid on request.*

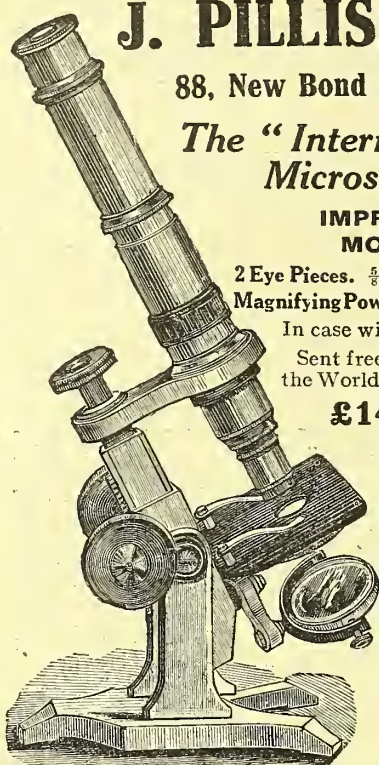
IRVING'S YEAST-VITE LIMITED

Phone: Clerkenwell  
4623 (2 lines).

12-16 LAYSTALL STREET, CLERKENWELL, LONDON, E.C.1

Wires: Yeastvite,  
Cent, London.



**J. PILLISCHER**

88, New Bond St., W.1.

*The "International"  
Microscope***IMPROVED  
MODEL**2 Eye Pieces.  $\frac{5}{8}$  &  $\frac{1}{2}$  Object Glass.  
Magnifying Power 50 to 420 diams.

In case with lock and key.

Sent free to any part of  
the World on remittance of**£14 : 6 : 0**

"The Lancet" says:  
"We can conscientiously recommend it to all who really want a useful instrument."

Enquiries invited  
for all other kinds  
of Microscopes,  
Optical and other  
scientific instruments.

15 GOLD MEDALS  
16 GRAND PRIX

**Reliance***SEAMLESS  
MOULDED.***BATHING CAPS**

"LUSTRE" TRANSPARENT  
AND  
JAZZ MARBLED FINISHES.

**BEAUTIFUL MODELS.**

Retailing  
from . . . **2/3 to 4/6** each.

Write for List and Samples.

MADE in our LONDON FACTORY.

**RELIANCE RUBBER COMPANY**

LIMITED

212-213 Upper Thames Street London, E.C. 4.  
Telephone City 2391 (Two Lines) Telegrams Doorstep Best London.

**Dr. SCHOLL'S  
ZINO PADS**For Corns, Bunions,  
and Callouses.

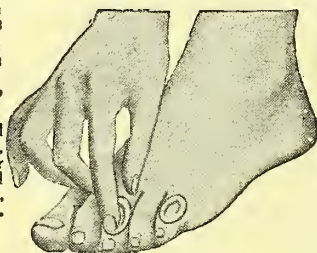
Being simple to apply, effectual  
in use and heavily advertised,  
they have secured the major  
part of the enormous and  
increasing demand for corn,  
bunion and callous remedies.

Put one on—the  
pain is gone.

Dr. Scholl's Zino Pads remove the cause, prevent all chafing and  
rubbing, are self adhesive—require no strapping, are applied in three  
seconds and do not come off even when bathing. Retail price per box 1/3.

Write for Illustrated Catalogue.

The SCHOLL MFG. CO. LTD., Granville Square, London, W.C.1



When you're asked for  
crêpe bandages—sell

**NORVIC**  
"Blue Carton"

Satisfied customers are an asset.

**PROTECTED PRICES:**

|      | 2"   | 2½"  | 3"   | 3½"  | 4"   |
|------|------|------|------|------|------|
| Cost | 12/- | 15/3 | 18/3 | 21/3 | 24/3 |
| Sell | 1/6  | 1/11 | 2/3  | 2/8  | 3/-  |

Discount for quantities : 3 doz. 2½%, 6 doz. 5%

Stocked by all the leading wholesalers.

Grout &amp; Co., Ltd., 35 Wood St., London, E.C.1

To Increase  
Your Revenue**SELL "TOINOCO" PAPER HANDKERCHIEFS**

The ORIGINAL Brand

THEY MEAN INCREASED SALES. The ONLY Paper Handkerchief regularly advertised. Face Price. Minimum Retail

"Silky Fibre" 50 for 2/- Also Toinoco Face Towelletes (in packets of 50) 9d., 1/-, 1/3

"Papier Crepon" 50 for 1/9 Toinoco Handkerchief Co., Ltd., 55 Hatton Garden, London, E.C.1

**WM. WARNE & CO. LTD.**

29 GRESHAM STREET, E.C. 2.

*India Rubber Manufacturers,*

Surgical, Chemical, Domestic Articles, Syringes,  
Water Beds, etc.





Perfectly Perforated Standard Size Roll 6d

**Geisha Crepe Toilet Paper**

Used by over One Million Persons

**SOFTEST STRONGEST SOLUBLE**

Sample Roll, prices and terms, from—  
**H. C. STERN**  
 12 Farringdon Avenue, London, E.C.4  
 Telephone: Central 3140. Telegrams: "Glastos, Lud, London."  
 Obtainable from all Wholesale Factors.


**Best sellers**

The public is asking for **ZEAL** CLINICAL THERMOMETERS because they are:-  
**GUARANTEED TO STAY ACCURATE**  
**CONSISTENTLY ADVERTISED**

*Made by*  
**ZEAL**

*—the name the public knows.*

**G. H. ZEAL, LTD.,**  
 75 & 77, St. John St., London, E.C.1.



**"Wimaco" Specialities, British and Best.**

**HOT WATER BOTTLES**—Grey and Red. Finest quality heavy weight rubber

INSIST ON WIMACO MONARCH SEAL BRAND (Regd.). THERE IS NO SUBSTITUTE FOR WIMACO.

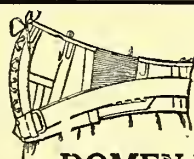
**WINCHESTER MANUFACTURING CO., LTD., ISLEWORTH, MIDDLESEX**



### AN EXTRAORDINARY DEMAND

is being experienced for our REDSKIN RUBBER BOTTLE, and those who have not seen samples or had prices are requested to write for both, as evidently it is a good line. Do it now.

**GEORGE MACLELLAN & CO., LTD.** (Estab'd 1870),  
 GLASGOW RUBBER WORKS, MARYHILL, GLASGOW, N.W.25



### "DOMEN" BELTS SINGLE BELT SUPPLIED.

All sizes in stock ready for delivery per return. List and Terms on application. Catalogues supplied free for distribution.

**DOMEN BELTS CO. Ltd.** 456 STRAND,  
 London, W.C.2

# GLASS BOTTLES

Large Stocks of PHIALS, PANEL FLATS, COUGH MIXTURE PANELS, MEXICAN FLATS, CANNON ESSENCES, &c., at low prices.

Write for Prices to—  
**FREDK. YOULDON** (Formerly Proprietor of E. Youldon. Established 1840.)  
 68 BASINGHALL STREET, LONDON, E.C.2.

'Phone: London Wall 3529. Telegrams: "Youldon, Ave, London."



F. W. BERK &amp; CO., LTD.

106 Fenchurch Street, E.C.3.  
Works: Stratford, E.15 and  
Morrison, Glam.**COD LIVER OIL***"Lofot-Mountain Brand"*

BROMIDES

CALCIUM LACTATE

CAFFEINE

CAUSTIC STICKS

HYPEROL (SOLID H<sub>2</sub>O<sub>2</sub>)

LITHIUM CARBONATE

STRYCHNINE

THEOBROMINE

MERCURIALS

SULPHURIC ACID

NITRIC ACID

HYDROCHLORIC ACID

EPSOMS AND GLAUBERS

HYDROGEN PEROXIDE

CAUSTIC POTASH

CARBONATE OF POTASH

LACTIC ACID

MERCURY

ALOES

BALSAMS

CHAULMOOGRA OIL

ERGOT OF RYE

LECITHIN

MALEFERN

WITCH HAZEL EXTRACT

BOTANICAL DRUGS

&amp;C., &amp;C.

TAS/ch. 123.

**PURE MALT EXTRACT***with FINEST***NORWEGIAN COD LIVER OIL***The Brand that does not separate nor crystallize.**Your own name and address on labels. In English  
jars, etc. Direct from the actual manufacturers.***THE BRITISH DIAMALT COMPANY**  
SAWBRIDGEWORTH - - HERTS.

---

A product of certified Vitamin potency

---

# Vitamin - Tested COD-LIVER OIL

*Glaxo*  
BRAND



Many pharmacists have expressed a desire to benefit by the unequalled experience gained by the technical staff of the Glaxo Research Laboratories as the result of more than 2,000 biological assays of the vitamin content of cod-liver oil. These pharmacists wish to maintain their reputation for supplying only the finest medicaments.

We have therefore decided to pack "Vitamin-Tested" Cod-Liver Oil, under the brand name of Glaxo. This oil is tested in our Laboratories and is guaranteed of the same strength as we use for the preparation of Ostelin. Upon this oil you can definitely rely. Its potency will be from twice to three times that of the average "refined" cod-liver oil. A signed certificate of vitamin potency will be enclosed with each consignment.

"Vitamin-Tested" Cod-Liver Oil, "Glaxo Brand," is packed in bottles containing 9 oz., and supplied in original cases of two dozen bottles, to retail at 2/9 per bottle. The regular trade discount is 25%, but a special discount of 33 $\frac{1}{3}$ % is allowed on orders for original cases.

Address all enquiries to the SALES MANAGER,  
GLAXO HOUSE, 56 Osnaburgh St., London, N.W.1





*When you require  
Medicinal Non-Freezing*

# COD LIVER OIL B.P.

be sure to only get the  
guaranteed genuine

## LOFOTEN

*Quality*

**"VITA" BRAND**

produced by

**RAGNAR SCHJØLBERG,  
Bodø, Norway**

entirely in their own large and most modern plant of latest design, from finest possible obtainable quality Pure Lofoten Cod Liver Oil.

### PROTECT YOURSELVES

against inferior or mixed oils by placing your orders for "Vita" Brand under our guarantee.

**STOCKS ALWAYS HELD IN LONDON**

*Full particulars and samples from :*

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of Beef, Mutton or Chicken consists solely of the juice of the finest meats, prepared with the greatest care under the most hygienic conditions.

Essential in the Sick Room.

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The ideal transparent wrapping absolutely harmless, air and grease proof, as used by all the leading Perfumers, Soap Manufacturers, etc., etc., for wrapping Soap, Drugs, Tablets, Bath Crystals, Perfumery, Surgical Dressings, Sponges, Puffs, Soothers, Tooth Brushes and all Articles of Toilet.

Cellophane can be had in sheets, all sizes and colours; also in the shape of **Bags, Discs, Envelopes**, printed or not, allowing the contents to be seen by transparency.

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Cellophane protects, beautifies and adds the quality touch.

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The  
Famous Natural Aperient Water.

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An extensive propaganda is being carried out among the Medical Profession and the general public which is resulting in a largely increased demand for this world-renowned NATURAL Aperient Water.

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24/- per doz. large bottles - or 48/- per case of 25  
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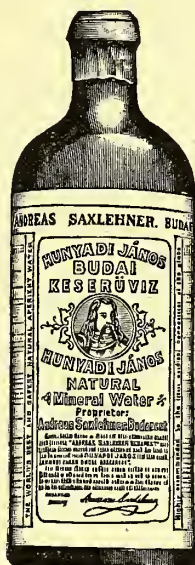
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2/6 per large bottle.

2/- per small bottle.

Hunyadi János has for more than fifty years been recognised as the best of the **NATURAL** mineral waters containing sulphate of soda and sulphate of magnesia. Its laxative action is sure but gentle; it stimulates the liver and cleanses the blood.



Doctors are constantly prescribing Hunyadi János in preference to ordinary aperients, whilst many of your customers who know its value are already using it. Traders would therefore find it to their advantage to keep a stock of this famous **NATURAL** Aperient Water.

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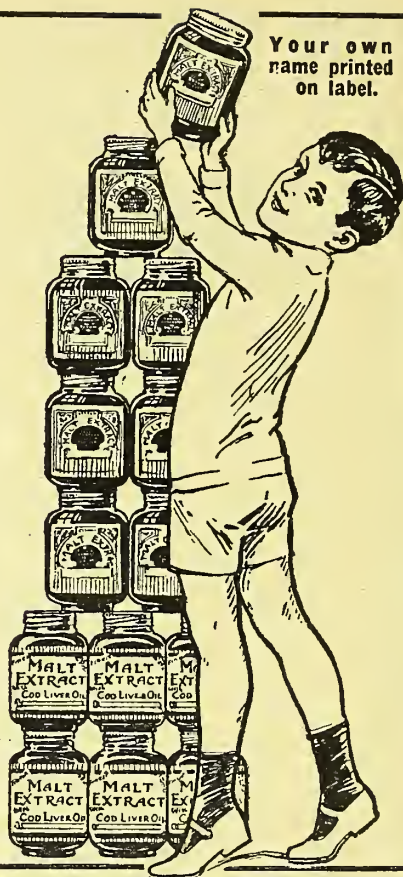
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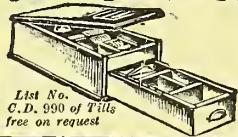
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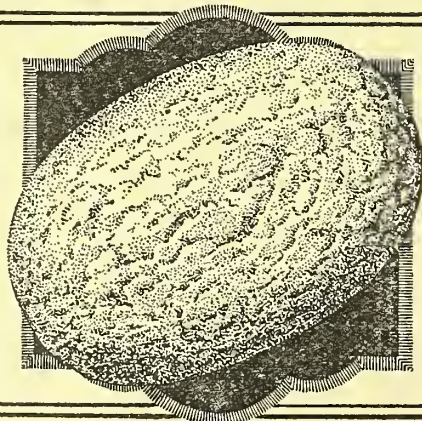
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In Prescriptions, and How to Avoid It.

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The Oldest House in the Trade

# PHOSFERINE

## New Window Display Conditions

Monthly Account.Carriage Paid.

For a small Central Window Display of not less than 14 days and an order for £5 worth of Phosferine we allow a bonus of 10/6, on a £2 10 0 order 5/3.

This shows a net profit on the transaction to the Chemist of 35%, besides attracting the passer-by to the window and considerably augmenting sales generally.

Should a £5 or £2 10 0 parcel not be required, any smaller quantity will be forwarded carriage paid, and can, if desired, be regarded as part of the £5 or £2 10 0 order. On completion of the order and a notification that the display is in progress the bonus will be allowed.

The above conditions apply only to the United Kingdom.

**EXAMPLE.**

|                               |      | COST    | SELLS FOR |
|-------------------------------|------|---------|-----------|
| 3½ dozen 1/3 size at 12/- net | .... | £2 2 0  | £2 12 6   |
| 2 " 3/- " at 30/- "           | .... | 3 0 0   | 3 12 0    |
|                               |      | 5 2 0   |           |
| Less 10/6 for Window Show     | .... | 10 6    |           |
|                               |      | £4 11 6 | £6 4 6    |

Showing a Net Profit of £1 13 0 on an outlay of £4 11 6.

Window Display Material Free and Carriage Paid.

**WHOLESALE PRICES OF PHOSFERINE.**Carriage Paid.Monthly Account.

|          |      |                    |
|----------|------|--------------------|
| 1/3 size | .... | 12/- per doz. net. |
| 3/- "    | .... | 30/- " "           |
| 5/- "    | .... | 48/6 " "           |
| 12/- "   | .... | 114/- " "          |

**PROTECTED PRICES.**

Phosferine and all of our Proprietary Medicines are supplied on the condition that they are not retailed in the United Kingdom under the following prices—viz., 1/3, 3/-, 5/-, and 12/-.

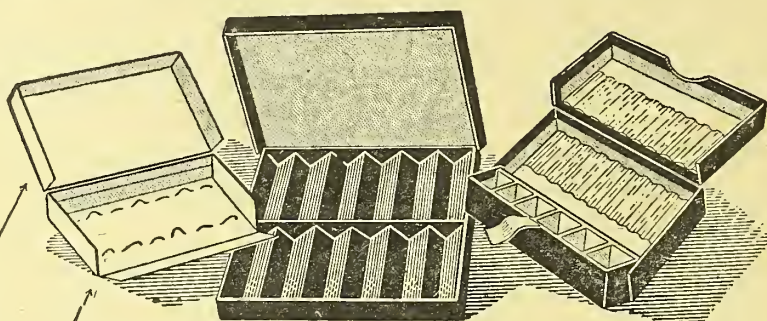
**ASHTON & PARSONS, Ltd., Ludgate Hill, LONDON, E.C.4.**

Telephone No.: CITY 8733. Telegraphic Address: "PHOSFERINE, CENT, LONDON."

**IMPORTANT.**—Every care is used in corking and packing Phosferine, but occasionally a leaky bottle will pass undetected. Any leaky or faulty bottle should be returned to Ashton & Parsons, Ltd., Ludgate Hill, London, E.C.4, when a fresh supply will be sent and postage refunded.



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No. 2.

Illustrated above are three of our hinged Lid Perfume Boxes, two of which are partitioned and the other is made with a loose elasticated card.

The Box on the right is a novelty box made to hold six ampoules.

The good workmanship and the good quality of material used combine to make these boxes very attractive and useful.

## NOTE THEIR GOOD POINTS

- |   |  |   |
|---|--|---|
| 1 | The elastic used is the best obtainable and will retain its elasticity for a considerable time.                              | 1 |
| 2 | This Box has been specially designed for easy extraction of contents, the Container portion being hinged to the Box portion. | 2 |
| 3 | Good strong hinges. Only best calico hingeing cloth used.  | 3 |
| 4 | Contents carefully protected by corrugated lining in Box and Lid.  | 4 |

### FACTORIES:

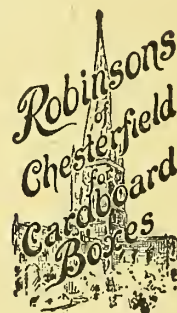
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Telephone:  
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*Manufacturers of Round, Oval, Square  
and Folding Cardboard Boxes,*

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Telegraphic Address:  
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# THE CHEMIST AND DRUGGIST SUPPLEMENT

42 CANNON ST.  
LONDON E.C.4

MARCH 31, 1928.

*This Supplement is inserted in every copy of The Chemist & Druggist.*

## EASTER HOLIDAYS

NEXT WEEK "THE CHEMIST AND DRUGGIST" SUPPLEMENT will be put to press a day earlier than usual. Therefore any advertisements intended for the Supplement of April 7 should reach this Office not later than

**10 a.m. on WEDNESDAY, APRIL 4**

ADVERTISEMENTS RECEIVED LATER WILL BE INSERTED IN THE ISSUE OF APRIL 14.

*N.B.—The Offices will be closed from Thursday evening, April 5, to Tuesday morning, April 10*

## CHEMISTS' TRANSFERS.

Messrs. Orridge & Co., 56 Ludgate Hill, E.C.

Telephone No.: CITY 2283.

May be consulted at their Offices on matters of Sale, Purchase and Valuation.

1.—LONDON, N.—Good-class Family Retail and Dispensing Business with Kodak Agency; returns exceed £4,100; net profit £900; single-fronted shop; estimated value of stock and fixtures £2,000; house contains seven rooms; private entrance; favourable lease; price £3,750, or near offer.

2.—LONDON, S.W.—Family Retail and Dispensing Business with N.H.I.; returns approach £1,600, at good prices; rent, £80; held on lease; good house with garden and side entrance; vendor is anxious to sell and will meet a purchaser reasonably.

3.—LONDON, S.E. (Main Road).—Very old-established Business; general Retail and N.H.I. Dispensing; returns average £22 weekly, with scope for increase; large double-fronted shop, very well stocked; rent £75 per annum; sublet £1 weekly to Dentist, leaving ample living accommodation; extremely well decorated; valuation terms entertained.

4.—ESSEX.—General Retail and Dispensing Business; returns about £34 weekly at usual prices; double-fronted shop; stock and fixtures estimated at about £380; good living accommodation; terms, valuation of stock and fixtures, and a sum for goodwill to be agreed.

5.—LONDON, S.W. (Suburban).—General Retail Business with Kodak Agency; returns £1,100 per annum, plus N.H.I. Dispensing, about £80 yearly; net profit £300; single-fronted shop; small house, with bathroom and garden; rent £43 per annum; price £800, or near offer.

6.—LONDON, N.—General Retail and Dispensing Business with N.H.I.; established many years; returns between £750 and £800 per annum at good prices; single-fronted shop; stock and fixtures estimated at £650; good house with bathroom and back entrance; rent, £35; held on lease; price £675.

7.—SOUTHEAST.—Family Retail and Dispensing Business; returns, under management, £800; estimated net profit, £220; double-fronted shop; rent £80; sublet £71; no near opposition; price £500; scope for increase in the hands of a principal.

8.—SOUTHERN COUNTY.—General Retail and Dispensing Business with Kodak Agency; returns last year £3,700, at good prices; convenient house; long lease; nice garden; price £2,400, or near offer.

9.—SUSSEX.—General Retail Business with Kodak Agency; returns £1,450; net profit £360; audited accounts; scope for increase in Agricultural; double-fronted shop; house and small garden; moderate rent; entirely unopposed; further details on application.

10.—KENT (County Town).—Old-established Country Retail and Dispensing Business with Agricultural; returns last year £4,142; gross profit £1,326; large lofty shop, very well fitted and stocked; rent £120; 21 years' lease; price £3,300; this is a bona-fide concern and one we can thoroughly recommend; further details on application.

11.—BERKSHIRE.—Old-established Retail and Dispensing Business; returns last year £3,289; a lease will be granted or the premises may be purchased; price for business £2,400; further details on application.

12.—DORSET.—Good-class Family Retail and Dispensing Business; progressive turnover, last year being £1,900; net profit £467; double-fronted shop, fitted in oak; well stocked; convenient residence; small garden; no near opposition; price of business £1,200; property must also be purchased.

13.—NORTH OF ENGLAND.—Working-class Retail Business; weekly turnover averages £30, plus N.H.I. Dispensing, which was £400 in 1927; small house; new lease will be granted, or the property may be purchased; terms: goodwill £300, or near offer, plus the value of stock and fixtures, the whole between £500 and £600.

14.—SOUTH-WEST OF ENGLAND.—General Retail and Photographic Business for Disposal, either alone or with Branch; combined turnover £2,250, of which sum about £1,550 is from the main establishment; value of stock and fixtures about £1,200; rents, £80 and £25 respectively; larger concern held on lease; no serious opposition; price £1,400, or the businesses may be purchased separately.

Messrs. O. & Co. desire to emphasize the necessity of a periodical Statement of Account by which means alone Profit, the value of Business, &c., can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often omitted and eventually becomes confusion and loss.

## Valuations for Stocktaking

Messrs. O. & Co. are prepared to undertake these essential duties and make Special Terms for such service.

**ORRIDGE & CO., 56 LUDGATE HILL, LONDON, E.C.4**



## The Association of Manfg. Chemists, Ltd.

Business Agency, Transfer & Valuation Department

Head Offices: Kimberley House, Holborn Viaduct, London, E.C.1 (and at 2 Bixteth Street, Liverpool).

PARKIN S. BOOTH, Accountant & Valuer. Phone: City 1261-2-3

### BUSINESSES FOR DISPOSAL

- 1.—**ESSEX**.—Retail Dispensing Business; on lease 21 years at £100, rising to £150 p.a.; returns, £37 per week; large double-fronted shop; private entrance to flat above shop. (135)
  - 2.—**SHEFFIELD**.—Small Business for immediate disposal. Premises consist of two shops communicating; good windows; living room, scullery, two bedrooms and attic, held on monthly tenancy at £45 p.a.; returns approximately £15 p.w.; room for increase; price £350. (145)
  - 3.—**BRIGHTON**.—Retail Dispensing Business; premises consist of single-fronted shop; 15 ft. frontage, with dispensary and large basement; held on lease 17 years at £52 p.a. inclusive; returns average £20 p.w.; can be increased. Full particulars on application. (147)
  - 4.—**LONDON, S.W.**—Two small Businesses for immediate disposal; one in good position on main bus and tram route; premises held on lease, 16½ years to run; rental £2 7s. 9d. p.w. Takings approximately £765; can be increased under personal supervision. Further Business situated in thickly populated working-class district, with good possibilities for owner manager; premises held on lease, 16 years to run at rental of £60 p.a.; dwelling accommodation sub-let £65 p.a.; turnover approximately £1,090. Full particulars on application. (151)
  - 5.—**SUSSEX**.—For immediate disposal, Dispensing and Fancy Retail Business, held on lease 13 years to run; rent £35 p.a.; returns average £39 weekly; premises consist of shop with room at back and kitchen on ground floor; 5 rooms upstairs; approximate value of stock, £850. Further particulars on application. (149)
  - 6.—**LANCS.**—Old-established Chemist's Business, with Post Office attached; held on quarterly tenancy; lease might be obtained, or property purchased for £1,200; returns, £15 per week, all cash; rent, £78 p.a.; living accommodation; price asked, £750. Full particulars on application. (142)
  - 7.—**NORTH-WEST DISTRICT**.—Family Retail Dispensing Business; double-fronted corner shop, with room at rear; flat with side entrance, consisting of three rooms; two garages; held on lease 12 years at £140 p.a.; flat let off at £103 p.a.; returns average £20 p.w.; can be increased. Full particulars on application. (146)
  - 8.—**BLACKBURN**.—Drug Stores in main thoroughfare, on lease, 7 years to run, at £60 per year; returns, £18; large lock-up shop, with excellent window; stock about £250. Offers invited. (140)
  - 9.—**PEMBROKE**.—Old-established Business, with good living accommodation; on lease, 40 years to run, at £45 per annum; returns, £40 per week; stock about £800. Further particulars on application. (139)
  - 10.—**CAMBRIDGESHIRE**.—Old-established high-class Dispensing and Retail Business; held on advantageous lease; well fitted and large stock carried; returns approximately £3,000, at good profit; excellent living accommodation; every investigation invited. Full particulars on application.
  - 11.—**LEEDS**.—Family Retail and Dispensing Business in thickly-populated working-class district; corner position; good opening for Chemist-Optician; dwelling accommodation attached; returns over £1,000; rent £52 per annum; price for quick sale £350. Full particulars on application.
  - 12.—**MANCHESTER**.—Well-established Pharmaceutical and Optical Business; large shop, with good living accommodation; rental, £117 p.a., with option to purchase property; returns about £20 p.w.; stock approx. £300; price for fixtures and fittings, £350; lease and goodwill, £100. Finest particulars on application. (130)
  - 13.—**LONDON, S.W.**—For immediate disposal, Retail and Dispensing Chemist's Business, held on lease, 33 years to run at ground rent £4; conveniently fitted and stocked; turnover approximately £1,050 per annum; room for scope and increase under personal supervision. Full particulars on application.
  - 14.—**CAMBRIDGE** (Near).—Old-established Pharmacy, on lease 20 years at £50 p.a.; returns average £13 per week; double-fronted shop, with good dwelling accommodation. Further particulars on application. (131)
  - 15.—**CHESHIRE**.—Retail Family Dispensing Business; single-fronted shop; good living accommodation; held on lease, five years, at £130 per annum; established 20 years; returns average £32 per week; full particulars on application.
  - 16.—**LINCOLNSHIRE**.—General Retail Dispensing Business in market town, with excellent living accommodation; established over 60 years; nearest opposition 5 miles away; takings over last 3 years average £1,640; net profit, 25 per cent; stock about £350; rates very low; wine and spirit trade; Kodak Agency. Further particulars on application. (141)
  - 17.—**LONDON, S.W.**—Very old-established Family Retail and Dispensing Business, occupying prominent corner position in busy thoroughfare; lock-up shop with storage accommodation; held on advantageous lease at £100 per annum; returns approximately £2,300 per annum; can be increased under personal management; full particulars on application. (148)
- Stocktaking and Valuation of Businesses undertaken at moderate inclusive fee. Chemists are invited to consult us in respect of their requirements in connection with sale or purchase of businesses. Chemists in the North are requested to communicate with our Liverpool Offices.

## BERDOE & FISH

VALUERS AND TRANSFER AGENTS,

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(One minute from St. Pancras and King's Cross Stations.)

- 1.—**TUNBRIDGE WELLS** (Near).—Unopposed good Country Business; pleasantly situated; returns £1,450; books audited; nice house; low rent; on lease; fully stocked; price £1,150.
- 2.—**SOUTH COAST**.—Well-established Cash Retail, with Kodak Agency; returns £2,000; net profit £650; good house; valuable lease; excellent stock; price £1,600; worth attention.
- 3.—**SHEFFIELD** (Near).—Light Cash Retail, with N.H.I.; returns £1,400; net profit £300; large shop; main road position; good saleable stock; price £700, or near offer.
- 4.—**WEST OF ENGLAND**.—Light Cash Retail and Photographic Business, in pleasant market town; returns, under manager, £1,200; plenty of scope; low rent; good house; well-fitted pharmacy, fully stocked; price £1,100, or offer.
- 5.—**NORTHANTS**.—Light Cash Retail and Photographic Business; main road position; returns average over £1,300; net profit £350; books audited; good stock; price, £700.
- 6.—**WESTCLIFF-ON-SEA** (Near).—Sound Light Retail, Dispensing and Photographic; returns about £1,850; good unopposed position; growing district; modern house and pharmacy; price £1,150, or valuation terms arranged.
- 7.—**LEEDS**.—Family Retail and Dispensing Business in thickly populated working-class district; returns over £1,000, under manager; low rent; prominent position; price £350 for quick sale; only wants seeing.
- 8.—**LONDON** (Within 20 Miles).—Good-class Business; recently opened; present returns, £19 a week; scope for double; growing town; modern pharmacy; fine window and good stock; price £700.
- 9.—**WEST MIDDLESEX**.—Old-established Drug Stores; in same hands many years, and retiring; returns £727; splendid scope for qualified; low rent; on lease; house attached; price £425.

### BUSINESSES WANTED.

We have a large number of genuine cash buyers seeking sound businesses in all parts from £750 to £3,000, and cordially invite correspondence. Private register kept.

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We desire particularly to draw the attention of Colonial and Foreign Subscribers to the fact that in cases where they require partners, agents or assistants, or wish to sell their businesses, an Advertisement in this Supplement, placed in every copy of "The Chemist and Druggist," should be the readiest means of helping them to attain their object. The tariff for such announcements is given under the appropriate headings in the Supplement. Instructions and remittances can be sent to us direct or through the advertisers' correspondents in this country.



## BUSINESSES FOR DISPOSAL.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

**CHESHIRE.**—Main road; excellent position; old-established Chemist's Business for sale; family Dispensing, N.H.I., Kodak agency; commodious house, electric light throughout; will sell premises or lease to suit purchaser. Full particulars to genuine buyers. 55/33, Office of this Paper.

**DERBYSHIRE.**—Absolutely genuine concern for disposal; high-class Dispensing and Prescribing Business in residential country district; net profit last year £500; no opposition; all good-class trade; very easily worked; large modern shop with good house attached (two reception, three bedrooms), all modern conveniences; two private entrances, garage, garden; business £900 or valuation; freehold property £1,150; bankers' reference required. 56/34, Office of this Paper.

**EASY** reach of London.—Genuine cash Business; increasing; Kodak agency; good lease; opening for Optics; price about £3,000. Further particulars to cash buyers giving references. 56/12, Office of this Paper.

**HAMPSHIRE.**—Exceptional chance occurs to acquire a sound, good-class Business in progressive market town, midway between London and Coast; turnover, £3,600 at good prices; easily managed; good house and garden; long lease; large, well-kept stock; owner taken larger business; will accept £2,400. Apply, "Sound," 123/313, Office of this Paper.

**HARROGATE.**—Good-class Chemist (together with Wine and Spirits if required); best residential district; turnover (together) £65 weekly; Kodak, Library; excellent opening for smart young man; reason, principal going abroad; main road; terms arranged for quick sale; lease or sale; splendid house and shops.—Apply Walker, Chemist, Leeds Road.

**LANCS.**—Seaside Business on main road; corner property and overlooking Promenade; established 28 years; turnover £1,100, with scope for increase; profits good; Kodak agency; rental £85, lease granted; price £800 cash, or part payments considered; genuine opportunity. 55/29, Office of this Paper.

**LINCOLNSHIRE.**—Established 60 years; death vacancy; splendid opportunity for enterprising man; scope for considerable expansion, General, Agricultural, Dispensing, Kodak Agency; convenient commodious premises (freehold), lock-up shop, for sale cheap; mortgage can be arranged; fixtures and stock at valuation; house available near business; full particulars on application. 56/38, Office of this Paper.

**LIVERPOOL.**—Busy main road; corner shop; good Chemist's Business; increasing trade with splendid opportunities; business and property. Further details to genuine inquiries only. "C. Y. K.," 55/9, Office of this Paper.

**LONDON SUBURB (Essex).**—Splendid opening for a live man, General, Dispensary, Prescribing, Own specialities; Photography; 10 years' lease to run (part let off); returns average about £600 a year; can easily be doubled in a few months; price about £200, or reasonable offer; ill health makes immediate sale necessary. 56/21, Office of this Paper.

**LONDON, W.**—For disposal, a good-class Retail and Dispensing Business in busy main road; returns, under poor management, over £40 per week; owner, who is unable to devote his time to the business, will accept a reasonable cash offer. Apply, 56/4, Office of this Paper.

**MANCHESTER (SALFORD).**—Chemist's Business for Sale; established 1886; corner shop, three large windows; splendid position; rent £120; house sub-let, covers rent; Wine and Spirit Licence; average turnover last three years £1,700; price, value stock and fixtures £600, and agreed sum for goodwill. Apply 56/39, Office of this Paper.

**MIDDLESBROUGH.**—Chemist's Business in industrial area; active Counter trade, £18-£20 (increasing); N.H.I. over 300 months; established three years (two Drug Store, one Chemist); compactly fitted; clean stock; good house attached, which would sublet for 10s. weekly; lease granted; inclusive rent £52 and rates £23; price, valuation or best offer to £250; terms arranged; relinquishing for Optics only. 163 Cannon Street.

**NORTH OF ENGLAND.**—Chemist's Business for sale; large residential district; returns £25 weekly; scope for increase; N.H.I., 300 to 400 per month; rent £55 per annum (or would sell the freehold property); price £750 to £800, according to value of stock; no agencies. 56/6, Office of this Paper.

**PADDINGTON,** 40 miles; middle class; cash returns approaching £1,500; gross £610, net £410; good house over; rent £71 per annum; easily worked; good lease; private entrance; books kept; open to investigation; good reasons for disposal; price £850 cash. Full particulars, 55/38, Office of this Paper.

**SCOTLAND.**—Best position in leading thoroughfare in large provincial town; unique opportunity for young man with Store experience; splendid chance for Optics, for which there is a large demand and no opposition; owner retiring. 57/23, Office of this Paper.

**SCOTLAND, NORTH.**—Business for sale, in nice part of seaside town; good district and no other Chemist near; nicely fitted double-fronted shop; Kodak agency; turnover, £1,000; good profits; scope for considerable improvement; rent, £25; owner having bought larger business, will accept £475 for quick sale; stock, fittings and goodwill. 52/32, Office of this Paper.

**SCOTLAND (PERTSHIRE).**—Chemist's Business; established 1911; no competition; turnover approximately £1,000, with well-fitted and stocked shop and comfortable house attached; good summer trade; scope for increased trade in Fancy, Optics and Photographic trades; low price for immediate sale. Apply, J. & A. Hastie, S.S.C., 43 York Place, Edinburgh.

**SOUTH COAST TOWN.**—A good-class Retail Dispensing and Photographic Business, with Kodak agency; double-fronted lock-up shop in main road; increasing turnover; returns last year, £1,872, at good profits; splendid opportunity for a progressive and energetic Pharmacist; price £1,100. Further particulars from 55/27, Office of this Paper.

**SOUTHERN COUNTY.**—Market town; good, old-established Country Retail Business; turnover more than £4,000 yearly; heavily stocked; nicely fitted; one of the best positions in the town; lowest cash price, £3,300. Apply "Genuine," 123/317, Office of this Paper.

**STRATFORD-ON-AVON (Near).**—Country Pharmacy; well fitted in mahogany; good stock, including optical test case; average returns £850 per annum; net profit £350 per annum; rent of premises, including house, £50 per annum; price for stock, fixtures and goodwill, £550. Further particulars apply Charles E. Naylor, Chemists' Valuer, 170 Vesper Road, Kirkstall, Leeds. Telephone, Horsforth 324.

**STROOD, KENT.**—Nice little Branch Business; established 30 years; net profit last year under management, £390; house and garden; rent £30; suit beginner or elderly man; every inquiry allowed; freehold can be purchased; owner giving up. Farrow, Brompton, Chatham.

**WEST OF ENGLAND.**—Seaside resort; good Retail, Dispensing and Photographic Business; well stocked and fitted; returns, £2,500 under management; 14 years' lease; rent £60 per annum. 54/1, Office of this Paper.

**WEST OF ENGLAND.**—Old-established Pharmacy; best position in market town; returns at present £2,400 or near; net profits, £550; stock about £1,000; house over shop let. Price for option of purchase of property, 10 years' lease to run, stock, fixtures and goodwill; £2,300 for quick sale. 49/35, Office of this Paper.

**ADEPS LANE, B.P. (Pharmaceutical Lanoline).**—German specialist wishes to sell proved and highly economical process; 25 years' experience. Write to Box No. E.L.T.4076 Rudolf Mosse, Ltd., 125-30, Strand, London, W.C.2.

**BUSINESS** for Sale, near Manchester, on lease at low rental; good living accommodation; ill-health cause of sale; heavy stock; takings £900 per year at good profit. Apply 56/37, Office of this Paper.

**CASH DRUG STORES, S.W.**—Fairly fitted and stocked; no near opposition; 7 rooms; small garden; side entrance; big scope for N.H.I. and Photography; gold mine for smart man; £300; part can remain; illness cause of sale; weekly takings average £16 to £18. 123/321, Office of this Paper.

**CHARMING** Pharmacy; fitted in oak; main tram route; Kodak agency; pleasantly situated, main road; taking £2,500; spacious and lock-up; interview any time; South Coast; price £2,200, or offer. 52/2, Office of this Paper.

**COUNTRY** Business.—Takings average £850 last three years; well-fitted and stocked double-fronted shop; Rexall and Kodak Agencies; good Optical connection; lease can be converted into freehold; living accommodation if required, or can be used as a lock-up shop; low rental; £500 for quick sale. Replies, 56/9, Office of this Paper.

**FOR** Disposal, well-known Patent Medicine Business, capable of great development; the business is well established and Proprietary is stocked by all Wholesalers and multiple shop concerns; part purchase price can remain; principals or their solicitors only dealt with. 123/308, Office of this Paper.

**FOR** Sale as a Going Concern, excellent Chemist's Business, situated in important Market Town. Full particulars of Sydney G. Best, F.A.I., Avon Chambers, Salisbury.

**HIGH-CLASS** Business; beautifully situated main road; oak throughout; Kodak Agency; taking £2,500; town growing rapidly; nearest offer. 52/200, Office of this Paper.



**SOUND** unopposed Business; established many years; doing £1,775; Kodak Agency; near Broads; good fishing and boating; also house over (freehold); three bedrooms, bathroom, two sitting-rooms, kitchen, etc.; side and back entrances and yard; electric light; price for both £1,600; offer entertained; growing district. 55/7, Office of this Paper.

**£350**, or £75 goodwill and valuation of stock and fittings, purchases old-established working-class Retail and Kodak Business, situate in main road E. London; takings average £900 yearly under management; gross profit £350 year; owner-manager would increase; suit qualified or unqualified; rent and rates £2 weekly; good lease; small house vacant. Apply for particulars to view. 47/40, Office of this Paper.

## APPOINTMENTS.

### BIRMINGHAM UNION. SEELY OAK HOSPITAL.

#### ASSISTANT DISPENSER (FEMALE).

**A**PPPLICATIONS are invited for the post of Assistant Dispenser at the Seely Oak Hospital, Birmingham. Attendance will be required daily from 9 a.m. to 5.30 p.m., with Saturday afternoons and Sundays free.

Scale of salary, £150 per annum, rising, subject to satisfactory service, to £180 per annum (non-resident). The salary of the successful candidate will be fixed within the scale according to qualifications and experience.

Applications stating age, experience, etc., and accompanied by copies of three recent testimonials, must be forwarded so as to reach the undersigned not later than Saturday, April 14, 1928.

Further particulars may be obtained on application to the Medical Superintendent at the Hospital.

C. P. BEECH,

Clerk to the Guardians.

Union Offices, Edmund Street, Birmingham.

March 21, 1928.

### GREENWICH & DEPTFORD HOSPITAL,

Vanbrugh Hill, East Greenwich.

**T**HE Guardians of the Greenwich Union invite applications for the appointment of Assistant Dispenser at the above Hospital.

Candidates must be qualified for the appointment in accordance with the Regulations of the Ministry of Health.

Hours of duty, 9 a.m. to 6 p.m. daily; Saturdays, 9 a.m. to 2 p.m.

The person appointed will also be required to take duty for two hours on alternate Sundays and Bank Holidays and to dispense for the Institution and a certain number of the Outdoor Poor when necessary.

Remuneration £250 per annum, with dinner and tea daily when on duty, subject to deduction under the Poor Law Officers' Superannuation Act, 1896. Further particulars of duties may be obtained of the Medical Superintendent of the Hospital.

Applications to be made on forms to be obtained at the Guardians' Offices, Board Room, Woolwich Road, East Greenwich, and they should be returned to the same address not later than noon on April 13, 1928.

By Order,

W. C. CORNISH.

Clerk to the Guardians.

March, 1928.

## AGENCIES.

**A**RE You a Seller? If so, this Agency is worth £10 per week; grounds open: (1) Midlands, (2) Lancashire and Cheshire, (3) Scotland; small range, quick selling Toilets to carry; good repeaters; large existing connection handed over; good commission on all orders off ground; no reports wanted—only orders; guarantee society essential. Write fullest particulars in first letter. 55/15, Office of this Paper.

**B**UYING Agents (very small outlay) required for a Chocolate Laxative, made in the finest chocolate coverture; splendid paying line; quickly sold; easy repeats; all grounds open, including Northern Ireland; capital and attractive side-line for traveller with own car out for quick selling, easy side-line. State ground covered, etc., in strict confidence. 55/39, Office of this Paper.

**B**UYING Agents required in Northern and Midland territories, on sole agency basis, to handle three smartly packed, proved selling lines; each line carries excellent display matter and remunerative terms. Replies to 54/6, Office of this Paper.

**P**ART Connection in Midlands, south and east, handed to pioneer Salesman already handling one or two lines wanted in (1) Brum, (2) Manchester, (3) London, (4) Bristol, (5) Swansea, (6) Glasgow, (7) Perth, (8) Edinburgh, (9) for an advertised (when placed) twopenny line; this Agency is worth £3 a week first year to a "sticker." 56/31, Office of this Paper.

## PARTNERSHIPS.

**A**DVERTISER, with exceptional experience in Retail, Wholesale, and book-keeping, would like to meet Pharmacist in business with a view to working partnership; sound references; ample means. Apply, 52/3, Office of this Paper.

## PREMISES TO LET.

**B**LACKBURN.—Double-fronted Shop Premises, near centre of town, which have been in occupation of Chemists continuously since year 1835, now to Let; suitable for multiple firm or Chemist commencing business; no ingoing; write for photograph and details; immediate occupation and lease granted to suitable applicant. 56/35, Office of this Paper.

**H**OUNSLOW, W.—Shop with living accommodation, to let, on new parade; main road; corner; no opposition; splendid opening for enterprising Chemist with £500 capital; rent, on lease, £100 p.a. Stephens, Builder, Hanworth Road, Hounslow.

## PREMISES WANTED.

**D**ENTAL Surgeon requires two rooms over Chemist's shop in small town, Surrey, Sussex or Kent. Address Box 70. Dental Manufacturing Company, 17 Newman Street, London, W.1.

## SITUATIONS OPEN.

### RETAIL.

### [HOME.]

**6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.**

**B**IRMINGHAM.—Qualified Junior for relief, with view to management; must be smart and pushing salesman; accurate Dispenser and of gentlemanly appearance and conduct; all-round trade knowledge required; all applications not answered in four days respectfully declined. Apply, with full particulars, to Managing Director, Hedges (Chemists), Ltd., Dale End, Birmingham.

**B**IRMINGHAM (Near).—Junior or Improver wanted for light Retail and Dispensing Business. Please state age, experience and salary required (outdoors), to Rex Allen, 55 High Street, West Bromwich.

**B**OGNOR.—Qualified Assistant wanted; able to take charge when required; must be first-class Dispenser and good Counterhand. Apply, with full details of experience, with references and salary required, to Long & Strickland, 21 High Street, Bognor.

**D**ERBYSHIRE.—Qualified Assistant required middle of April; able to take charge of branch shop; salary to commence, £4. Applications, enclosing testimonials and references, to 57/5, Office of this Paper.

**D**EVON.—Smart unqualified Lady Assistant; about 25; experienced in Counter, Dispensing, and D. & P. work; outdoors; photograph or interview essential. Full particulars and salary to Rossiters, Chemists, Tiverton.

**E**AST ANGLIA.—Experienced Assistant, unqualified, capable and energetic, required for good country market town Agricultural business; outdoors; permanency; must be well recommended. Kindly state age, experience, salary, when disengaged. J. Keeble (formerly Gostlings), Halesworth, Suffolk.

**H**ARROW.—Smart young lady, of good appearance, with some experience of the business, for high-class modern Pharmacy with view to Apprenticeship if desired. State wages required and all particulars to P.C.B. 14/8, Office of this Paper.

**I**RISH FREE STATE.—Wanted, fully-qualified Manager, L.P.S.I., for Branch; Photographical and Optical essential; South of Ireland city; good references required. 123/306, Office of this Paper.

**L**ONDON, E.—Qualified Assistant; capable Dispenser. Window-dresser, good Salesman and obliging at Counter. State salary and full particulars, in first letter, to W. G. Davies, 393 Commercial Road, London, E.1.

**L**ONDON.—Assistant, unqualified; age about 24 to 30; capable Dispenser, Window-dresser, good Salesman and knowledge of Photography; state age, height, and salary, with references, etc. 54/10, Office of this Paper.



**LONDON, N.**—Wanted, young lady with Minor qualification for middle-class business. All particulars to Mrs. Wilson, 355 Essex Road, N.

**LONDON, East.**—Qualified Assistant, middle-aged, wanted; must be good Dispenser, well recommended, sober and trustworthy; married preferred. Apply "Ingot," c/o T. H. Ford, Ltd., 6 Well Street, E.C.1.

**MANCHESTER SUBURB.**—Young, qualified Assistant required at once; knowledge of Photography and Window-dressing essential; give full particulars, references and salary required, also photograph, in first letter; permanency if desired. Shuttleworth, Chemist, Plixton, Manchester.

**MIDLANDS.**—Wanted, smart qualified lady as Manageress of Branch (age about 30); must have good Prescribing experience, capable Dispenser and Window-dresser, and obliging at Counter. Give recent references, salary required, and when disengaged in first communication (enclose photo). 123/320, Office of this Paper.

**ST. ANNE'S-ON-THE-SEA.**—J. H. Taylor & Son require young qualified man; outdoor. Enclose photo, to be returned; usual particulars and salary required.

**SOUTH DEVON.**—Wanted at once, capable unqualified Junior Assistant; age about 23 years (male). Apply, with full particulars, references and salary required (outdoors), to 54/12, Office of this Paper.

**TUNBRIDGE WELLS.**—Dispenser (male) required for high-class business soon after Easter. Applications not answered in a week respectfully declined. Full particulars to Bishop, Pharmacist, Tunbridge Wells.

**WEST OF ENGLAND.**—Wanted, young male Assistant for Dispensing Department; qualified; age 22-24. Apply, with full particulars, salary, etc., and photograph, if possible, to 123/300, Office of this Paper.

**ASSISTANT**, aged between 20 and 35; single; quick and accurate Dispenser; apply by letter; no photographs or stamps. Sayers & Barnes, Ltd., 199 Rushey Green, Catford, S.E.6.

**ASSISTANT** required immediately; quick and accurate Dispenser; good Counterman; must be experienced at Developing and Printing; good personal appearance and address. Full particulars, stating salary required, and enclose photo, which will be returned, Roe, Chemist, Epsom.

**IMPROVER**, Lady, wanted for mixed business; Dispensing and Photographic experience. References, usual particulars, and photo to Ward, Chemist, Chester.

**JUNIOR Velox Printers**; efficient and quick; permanency. Hines, Chemist, 86 Whitechapel High Street, Aldgate, E.

**JUNIOR Assistant**, for London district; good Dispenser; with experience in Window-dressing and Photography. Apply, 123/310, Office of this Paper.

**JUNIOR Assistant** wanted; must be good Counterman and have Photographic experience. Full particulars and salary required in first letter. All applications not answered in three days respectfully declined. Write, in first instance, to 55/28, Office of this Paper.

**LADY Dispenser** wanted for two weeks in May or June. State age, experience, salary required (outdoors), and when disengaged to H. Barnett, Chemist, Hythe, Kent.

**MANAGER**, Qualified, for London suburb; must be energetic, an experienced Salesman, good Window-dresser, and have a knowledge of Photography; progressive situation for a man with ideas. Apply to 123/309, Office of this Paper.

**MANAGER**, Qualified; age not over 40-45; London neighbourhood; for small family business; accommodation available. Applicants please enclose photo and state salary required. Apply to 123/311, Office of this Paper.

**OPTICAL Assistant** (registered J.C.Q.O.); experienced, capable Refractionist, possessing Photographic and Pharmaceutical knowledge, though not necessarily qualified. Full particulars in first letter, age, salary, etc. Write only, Mr. Hartley Shaw, 17 Bridge Street, Bradford.

**QUALIFIED Assistant**, young, to manage branch, recently opened; Photography. State full particulars. Apply J. M. & W. Darling, Chemists, South Shields.

**QUALIFIED Lady Assistant**; Dispensing and Counter experience. Apply, full particulars, Ellwood & Son, Leominster.

**QUALIFIED Assistant** (young) for light Retail and Dispensing (N.H.I.) business. State age, salary required. E. Courtenay, 2 Queen's Terrace, St. John's Wood, London.

**QUALIFIED lady** wanted as Assistant for good-class Dispensing and Photographic Business in pleasant country district in Hampshire, 35 miles from London. State age, experience, salary required (indoors), and enclose photograph, to be returned. 55/19, Office of this Paper.

**QUALIFIED Manager** for branch, South Devon; age 30-40; full particulars and photo first letter. 57/26, Office of this Paper.

**SMART Junior Assistant** (male) for Counter, Dispensing, Photographic, etc.; age about 20 years. Write, stating age, experience, salary required, and enclosing recent photo, which will be returned, to Wells & Smith, Ltd., Chemists, Maidstone.

**TIMOTHY WHITE CO., LTD.**, following the opening of new branches, require several experienced, qualified Managers, with ability and energy; permanencies and good prospects; free removal. Please apply, giving full particulars, to Secretary, Timothy White Co., Ltd., Chemists, Portsmouth.

**WANTED**, an Unqualified Assistant, used to N.H.I. Dispensing, Counter, Photographic and Stock. Apply, giving experience, age and salary and references, to 54/34, Office of this Paper.

**WANTED**, smart, capable Assistant, unqualified, about 22, single, to manage a Scholl's Foot Comfort Department; must understand Practipedics and desirous of specialising. Please state age, height, salary, references, with photo. Godkin, Chemist, Tunbridge Wells.

### WHOLESALE.

**COMMISSION Salesmen** required for proprietary offering great scope, and including novel selling scheme; good experience and sound Chemist's connection essential. Apply in writing, stating experience, territory, and full particulars, to "Z. G.", 52/1, Office of this Paper.

**DRUGGISTS' Sundries and Instruments.**—Capable and experienced Assistant, about 30, required; must have detailed knowledge of the goods and be used to assembling, passing and despatching export orders; wages from £4 to £5 per week, according to ability and experience. Apply, with fullest particulars as to qualifications for the post, to 123/299, Office of this Paper.

**EXPERIENCED Invoice Clerk** wanted at once; must be quick at figures and good typist, with knowledge of Export business. Apply to R. J. Reuter & Co., Ltd., Chemists' Sundries-men and Wholesale Perfumers, 69 Carter Lane, E.C.4.

**LADY Bookkeeper** required, early May, by leading London firm; a thoroughly capable, experienced Ledger Clerk in office staffed by ladies only; must be well versed in accountancy and competent to take charge of complete set of books; good handwriting essential; permanent and progressive post. Write, with full particulars of age, credentials and salary, to "Chemicus," P.C.B., 13/33, Office of this Paper.

**REPRESENTATIVE** required for Midlands, with good connection and car, to call on Chemists, hairdressers, etc., with Druggists' sundries and toilets; liberal commission. Apply to Galen Manufacturing Co., Ltd., Wilson Street, New Cross, London.

**REPRESENTATIVE** Commission only, to work Devonshire, Cornwall, Wiltshire, Somersetshire; generous terms to experienced man; old-established firm. 123/307, Office of this Paper.

**REPRESENTATIVE** wanted by old-established firm, to call on Retail Chemists in Yorkshire and Eastern Counties with toilet articles, proprietaries, etc.; will be required to reside on ground; salary, expenses, and commission. Write, giving full particulars of past experience, age, and remuneration expected. 123/312, Office of this Paper.

**REPRESENTATIVE.**—Young man of selling ability and experience, with connection among Chemists in London and South Coast, required by London Manufacturing Chemists; permanent and progressive position for the right man. Applicants should state definitely in first letter, age, experience (including retail, if any) and remuneration required, also when available. 123/314, Office of this Paper.

**REPRESENTATIVE** required to call on Chemists in South Wales and adjoining territory, to sell Bulk and Packed Goods on commission and part expenses; intimate knowledge of trade essential; state present agencies, ground covered, etc. 123/315, Office of this Paper.

**REPRESENTATIVE**, resident, for Midlands and Northern England; commission only; generous terms; numerous fines; old-established firm; good connection already. 123/316, Office of this Paper.

**REPRESENTATIVES** required for London and Provinces, to extend sales of advertised Toilet preparations; must be real Salesmen, accustomed to pioneering, and have live connection amongst Chemists, Stores, and high-class Hairdressers; expenses and commission. "Sales Manager," 56/19, Office of this Paper.



**R**EPRESENTATIVES with well-established connections required by well-known firm of olive oil producers, to work Kent, Surrey, Sussex, Hampshire, Wiltshire, Berkshire, Buckinghamshire, and Oxfordshire. Apply, 123/303, Office of this Paper.

**S**UNDRIES.—Wanted, experienced Assistant in Sundries Department by provincial house; state age, experience and salary required. 123/298, Office of this Paper.

**T**RAVELLERS, with good connections, required to carry quick selling speciality on good commission as Side-line; small samples; applications in strict confidence. 123/319, Office of this Paper.

**T**RAVELLER, with first-class connection amongst Chemists in London and Suburbs, required to carry an important side line. Apply 123/322, Office of this Paper.

**R**EQUIRED, three capable Travellers working coast towns, to carry manufacturers' range of Fancy Goods, Powder Puffs, etc., of exclusive design, including one Proprietary line in large demand; preference given to men carrying one other line and calling on Chemists, Hairdressers and Drapers; part expenses and commission. Write in confidence, stating territory covered and present line carried, 123/323, Office of this Paper.

**W**ANTED at once, first-class Representative to carry advertised toilet specialities for the South and South-West of England; excellent prospects for a hard worker; car preferred; one other non-clashing line may be carried. 123/301, Office of this Paper.

**W**ANTED, Travellers calling on Chemists in a position to handle as an additional line a well-established product in constant demand by medical men. Apply, stating territory covered, to 122/276, Office of this Paper.

**Y**OUNG Representatives wanted by well-known manufacturing house in (1) Lancashire, and (2) Yorkshire; preference given to those with experience and connection; car essential. Full particulars to 123/302, Office of this Paper.

#### (COLONIAL, INDIAN AND FOREIGN.)

**B.W.A.**—YOUNG, single, competent, ambitious, qualified Chemists, willing to accept progressive and remunerative appointments in British West Africa, are invited to register their names, and send full detailed particulars of their business careers to Lyndwood & Co., Manufacturing Chemists and Export Merchants, 37 Red Lion Street, High Holborn, London, W.C.1.

**F**OR CEYLON.—Young man wanted for Drug Department in large Stores in Ceylon, with experience as Dispenser and holding Minor certificate, good Counter experience; four years' agreement and prospects for suitable man. Write in first instance, giving particulars as to age, present and past employment and experience, to "Ceylon," c/o Deacons, Fenchurch Avenue, E.C.3.

**S**OUTH AFRICA.—Experienced Tablet and Pill Maker; must be thoroughly competent; three years' agreement, £25 monthly; passage paid. Write, stating age, with full particulars, record, copies testimonials, "H. M.," c/o Streets, 6 Gracechurch Street, E.C.3.

**Q**UALIFIED Pharmaceutical Chemist urgently required for West Africa; first-class passages out and home and furnished quarters provided; commencing salary £420 per annum, progressive; good prospects; successful man will be required to sail at short notice. 123/318, Office of this Paper.

### SITUATIONS WANTED.

#### RETAIL. [HOME.]

**A.A.A.**—BRIGHTON or district, not essential; season, temporary, permanent; abstainer; married; disengaged; moderate salary. "Aspirin," 6 Vernon Terrace, Brighton.

**A.A.**—LOCUM or permanency; unregistered; thoroughly experienced; Dispensing, Counter, Windows, Prescribing; trustworthy. Harries, 33 Albert Square, S.W.8.

**A** CAPABLE Manager or Assistant; 37; experienced all branches; excellent references; moderate salary. "Chemist," 64 Raleigh Road, Hornsey, N.8.

**A** CAPABLE, Unqualified Assistant or Manager, Chemist or Drug Store; good all-round experience; Prescriber, Salesman and Window-dresser; present berth three years; used to brisk trade. "Rheil," 56/25, Office of this Paper.

**A** QUALIFIED Chemist, five years' qualified experience, sound knowledge of Photographic, Prescribing, etc., desires good berth. Write, "Pharmacist," 16 Stockwell Park Road, S.W.9.

**A** REALLY smart, competent Assistant, aged 26, first-class City and West-End experience; commence immediately. Denny, 37 Biddulph Mansions, W.9.

**A** DVERTISER, unqualified, present managing, 31, tall, single, keen and reliable, seeks post with prospects; first-class testimonials. 55/23, Office of this Paper.

**A** LL-ROUND Unqualified Assistant; 22½; West-End experience; excellent Counterman and Dispenser; good references. "Statin," 154 Duke's Avenue, N.10.

**A** S Manager, Senior or Locum; Drug Stores preferred; Prescriber; personality and business builder. "G.," 130 Scott-Ellis Gardens, N.W.8.

**A** S Locum, or permanency (senior); N.W. or W. districts preferred; thoroughly experienced all branches; undeniable references. (Mr.) E. P. Coles, 30 Milton Road, Wealdstone, Harrow, Middlesex.

**A** SSISTANT, unqualified (Hall Certificate), middle-aged, all-round experience, requires post. Knight, 13 Marlborough Place, Banbury.

**A** SSISTANT.—45; unqualified; capable of taking charge; energetic worker; experienced; good reference. Kersey, 393 Commercial Road, London, E.1.

**A** SSISTANT.—Unqualified; good all-round experience, including Agricultural; seeks situation; excellent references. Evans, 31 Bletchley Road, Bletchley, Bucks.

**A** SSISTANT.—Unqualified; 25; requires permanency; good Dispenser; keen Counterman; Brighton or district preferred. Aspirin, 257 Preston Road, Brighton.

**A** SSISTANT, unqualified, age 21, height 5 ft. 10 in., desires temporary post; May to end of August; coast preferred, but not essential; well up, Dispensing, Counter, Photography, Window-dressing; splendid reference. John B. Cawdell, London House, High Street, Leicester.

**A** SSISTANT desires situation; unqualified, but active; capable, sober, trustworthy, and well experienced; disengaged. Blackburn, 299 Ifley Road, Oxford.

**A** SSISTANT (31), used to and able to take complete control; unqualified; excellent references. Apply, 54/5, Office of this Paper.

**A** SSISTANT.—Unqualified; Locum; permanent (Wholesale traveller); N.H.L., Counter, Agricultural, Prescriber; manage stores; age 40; married; 10 years last engagement. Apply, "P.," 7 Highfield Terrace, Skipton, Yorks.

**A** SSISTANT, qualified, experienced Dispenser, requires temporary position in London during April. P.C.B. 14/13, Office of this Paper.

**A** SSISTANT, unqualified, whole or part time, or holiday relief; all round experience; good reference. P.C.B. 14/9, Office of this Paper.

**A** SSISTANT, unqualified, first-class London experience, disengaged. "H. P.," 54 Temperley Road, Balham, S.W.12.

**A** SSISTANT, 22, unqualified, excellent experience Dispensing and Counter, desires post good-class pharmacy; London or South Coast preferred. H. Bunkham, 1 Southwick Street, Hyde Park, W.2.

**A** SSISTANT or Manager; experienced Dispenser, Prescriber, Salesman; single; mid-aged; unqualified. "Aspirin," c/o Miss Drewery, Kingsbridge House, Bracebridge, Lincoln.

**A** SSISTANT (24), unqualified, desires West-End experience; good Dispenser and Counterman; 6 years' experience. West, 28 Willoughby Road, Acton Vale, W.3.

**A** SSISTANT, disengaged when required; 26, of good appearance and address; thoroughly capable in all branches of business; 7 years present situation; interview any time. A. Fairclough, 13 Isla Road, S.E.18.

**A** SSISTANT, tall, age 22, unqualified, desires position; Dispensing, Photography, Window-dressing, etc. Taylor, 31 Cumberland Street, Cardiff.

**A** SSISTANT, 27, disengaged; all-round experience, including all Photographics; unqualified. 55/8, Office of this Paper.

**A** SSISTANT or Manager, unqualified, 27, capable and energetic, good Dispenser and Prescriber, all-round experience, desires permanency where there is plenty to do. 56/3, Office of this Paper.

**A** SSISTANT, unqualified, 33, all-round experience, quick, accurate Dispenser, capable Front Counter and Window-dresser, seeks change; Midlands or North preferred; good references. 56/28, Office of this Paper.

**C**OMPETENT, capable, energetic Assistant; thoroughly experienced in Dispensing, Counter work and Photography; good references. R/W., 56/20, Office of this Paper.

**C**ROYDON.—Part or whole time Assistant; age 25; tall; Counter and stock-keeping; experience. Lane, 60 Brighton Road.



**DEVON.**—All-round unqualified Assistant; 23; excellent Counterman and Dispenser; West-End experience; disengaged. Alford, 164 Duke's Avenue, N.10.

**DISENGAGED;** Locum, permanency, or part time; Minor qualification; experienced. "Pharmacist," 13 Disraeli Road, Ealing, W.13.

**DISPENSER,** lady, Hall certificate, requires post with Doctor, Hospital, or part-time Chemist. 55/34, Office of this Paper.

**DOCTOR'S** daughter seeks post as Dispenser, book-keeper, secretarial work; 10 years' experience; excellent testimonials; drive car. Apply, 52/54, Office of this Paper.

**DRUG STORES.**—Advertiser seeks position as Manager small business, view to purchase later; £100 deposit paid. "Veritas," 53/35, Office of this Paper.

**EVENINGS,** Relief (one, two, or three weekly); qualified; West-End managerial experience. 55/14, Office of this Paper.

**EXPERIENCED,** elderly, very energetic, desires change as Manager, branch or drug store; good Salesman, Prescriber, etc.; permanency; unregistered. "Sales," 53/26, Office of this Paper.

**FRANCIS & CO.,** Chemists, Wrexham, can confidently recommend a Junior; careful and accurate Dispenser, Photography, good Counterman and Window-dresser.

**FREE EVENINGS** from 6 o'clock (2 or 3 weekly), Pharmacist (39), all-round experience. "Chemist," 26 York Road, S.E.1.

**GERMAN PHARMACIST** (young), with University degree, desires post in English Pharmacy as a *Volontaire*, or on basis of exchange with young English Chemist wishing to gain experience of German Pharmacy. Write 123/304, Office of this Paper.

**JUNIOR Assistant,** 4½ years' experience, desires post; preferably London; good references. "Aspirin," 60 Grove Avenue, Twickenham.

**JUNIOR Assistant,** age 21, desires situation; excellent Dispensing and Counter work; Midlands preferred. 56/1, Office of this Paper.

**JUNIOR,** 24, seeks post; good all-round experience; good references; season engagement entertained. 57/7, Office of this Paper.

**LADY Dispenser,** Hall qualification, desires post; six years' experience; now disengaged. Fraser, 16 Deauville Court, Clapham Park, London.

**LADY Assistant;** 8 years' experience; Counter, Window-dressing, D. & P.; temporary or permanent. Davis, 2 Sheen Gate Mansions, East Sheen, S.W.14.

**LADY Assistant Dispenser** desires post in Dispensing; Hall qualification; Brighton, or within travelling distance; good worker. 54/39, Office of this Paper.

**LADY (25);** 8 years' Dispensing and general Retail experience; disengaged; requires situation; season or permanent. Williams, 68 Nower Road, Dorking, Surrey.

**LOCUM;** abstainer; disengaged; capable; anywhere; moderate terms; hooking dates; Easter free; good references. Carte, The Pharmacy, Rodley, Leeds.

**LOCUM** or permanency desired by competent, experienced Assistant; middle-aged; unqualified; disengaged; excellent references. "H. C. L.," 16 Monson Colonnade, Tunbridge Wells.

**LOCUM** or Manager; qualified; experienced; Dispensing, Counter, and Photo; at liberty now. Chemist, 32 Fairmount Road, Brixton Hill, S.W.2.

**LOCUM.**—Qualified; experienced; registered R.P.U.; disengaged April 2. "Pharmacist," c/o Mr. Gort, M.P.S., 241 Victoria Park Road, E.9.

**LOCUM.**—Qualified; experienced; good salesman; complete charge; anywhere; dates invited. 80 Brookhank Road, Lewisham, S.E.

**LOCUM.**—Experienced, competent, reliable; free until May 1 and first fortnight in June. "Chemicus," 239 Camherwell New Road, S.E.5.

**LOCUM.**—Qualified lady requires engagements; free April 16; any district. 56/24, Office of this Paper.

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**MANAGER;** qualified; all-round, practical knowledge; complete charge; free middle April; London preferred. 55/140, Office of this Paper.

**M.P.S.,** 34, married, desires post as Manager in good-class business; knowledge Photography, Optics, and good Window-dresser. Lloyd, 164 Glenroy Street, Cardiff.

**M.P.S.**—Young, desires Locum or permanency; Lancashire, Cheshire or North Wales preferred, but not essential; 12 months' London experience; excellent references. "Chemist," 197 Lloyd Street, Green Heys, Manchester.

**M.P.S.**—23, 5 ft. 10 in.; 5 years' City and provincial experience; excellent references; disengaged April 14; London or South Coast preferred. "Chemist," 164 Belsize Road, N.W.6.

**PART-TIME** work wanted by man, experienced all branches; Chemist or Doctor; moderate terms. 32 North Street, S.W.4.

**PART-TIME Assistant;** unqualified; morning or evening; terms moderate; good Dispenser; London or suburbs only. "S. B.," 55/12, Office of this Paper.

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**QUALIFIED.**—Age 26; 10 years' varied experience, West-End and seaside; good Dispenser and Counterman; smart appearance. "L. S.," 21 Brunswick Road, Kingston, Surrey.

**QUALIFIED.**—27, married; thoroughly experienced and capable, desires permanency as Manager (Midlands preferred); 12 years' Dispensing, Window-dressing, Counter and Photographic experience. 56/36, Office of this Paper.

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**UNQUALIFIED;** married; 20 years' experience; 6½ years and 8 years last two; references; disengaged; permanency desired. Stevens, 46 Mayhury Gardens, Willesden Green.

**UNQUALIFIED Assistant;** 35 years' experience, including shipping; disengaged; excellent references; Monmouthshire or Glamorganshire. Bagshaw, Park Square, Newport, Mon.

**UNQUALIFIED Lady Assistant** seeks post; Liverpool or Manchester; Wholesale and Retail experience (seven years London); Dispensing, Counter, Window-dressing; Packing Chemist's own lines; good references. 55/26, Office of this Paper.

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